

ESTIMATES COMMITTEE (1962-63)

TWENTY-SEVENTH REPORT

(THIRD LOK SABHA)

MINISTRY OF SCIENTIFIC RESEARCH AND CULTURAL AFFAIRS

Action taken by Government on the recommendations contained in the following Reports of the Estimates Committee (Second Lok Sabha) on the Ministry of Scientific Research and Cultural Affairs :

- 1. 76th Report on the Council of Scientific and Industrial Research ;**
- 2. 78th Report on the Secretariat (Scientific Research Wing); Grants-in-aid; National Research Development Corporation of India; Technical Institutions ;**
- 3. 83rd Report on the National Laboratories and Miscellaneous.**



**LOK SABHA SECRETARIAT
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March, 1963 Phalguna, 1884 (Saka)

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ESTIMATES COMMITTEE

1962-63

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SECRETARIAT

Shri Avtar Singh Rikhy, *Deputy Secretary.*

INTRODUCTION

I, the Chairman, Estimates Committee, having been authorised by the Committee present this Twenty-Seventh Report on action taken by Government on the recommendations contained in the following Reports of the Estimates Committee (Second Lok Sabha) on the Ministry of Scientific Research and Cultural Affairs:

- (i) 76th Report on the Council of Scientific and Industrial Research;
- (ii) 78th Report on the Secretariat (Scientific Research Wing); Grants-in-aid; National Research Development Corporation of India; Technical Institutions; and
- (iii) 83rd Report on National Laboratories and Miscellaneous.

2. The 76th, 78th and 83rd Reports were presented to the Lok Sabha on the 17th March, 1960, 22nd March, 1960 and 7th April, 1960 respectively. Government furnished their replies to the recommendations contained in these Reports between the 13th January, 1961 and 28th March, 1961; 22nd September, 1960 and 4th July, 1962; and 3rd December, 1960 and 26th July, 1962 respectively. Further information was called for in respect of replies to certain recommendations of these Reports. The replies were considered by the Study Group 'E' of the Estimates Committee (1961-62) on the 1st September, 1961 and the 28th October, 1961, and by the Study Group 'D' of the Estimates Committee (1962-63) on the 22nd November, 1962 and the 11th December, 1962.

The draft Report on action taken by Government on the 76th, 78th and 83rd Reports was considered by the Study Group 'D' on the 31st January, 1963 and adopted by the Committee on the 7th February, 1963.

3. The Report has been divided into the following four Chapters:

- I. Report;
- II. Recommendations that have been accepted by Government;
- III. Replies of Government that have been accepted by the Committee; and

IV. Replies of Government that have not been accepted by the Committee.

4. An analysis of the action taken by Government on the recommendations contained in the 76th, 78th and 83rd Reports is given in Appendix VI.

It would be observed therefrom that out of 62 recommendations contained in the 76th Report, 48 recommendations, *i.e.*, 77.4 per cent have been accepted by Government. Of the rest, replies of Government in respect of 9 recommendations *i.e.* 14.5 per cent have been accepted by the Committee, while replies in respect of 5 recommendations, *i.e.*, 8.1 per cent have not been accepted by the Committee.

Out of 52 recommendations contained in the 78th Report, 34 recommendations *i.e.* 65.4 per cent have been accepted by Government. Of the rest, replies of Government in respect of 13 recommendations *i.e.* 25 per cent have been accepted by the Committee while replies in respect of 5 recommendations, *i.e.*, 9.6 per cent have not been accepted by the Committee.

Out of 61 recommendations contained in the 83rd Report, 32 recommendations *i.e.* 52.4 per cent have been accepted by Government. On the rest, replies of Government in respect of 28 recommendations, *i.e.*, 45.9 per cent have been accepted by the Committee, while reply in respect of 1 recommendation, *i.e.*, 1.7 per cent has not been accepted by the Committee.

NEW DELHI;
March 6, 1963
Phalguna 15, 1884 (Saka) ..

H. C. DASAPPA,
Chairman.
Estimates Committee.

CHAPTER I

REPORT

The Estimates Committee (1959-60) presented three reports viz. 76th, 78th and 83rd* on the Ministry of Scientific Research and Cultural Affairs to the Second Lok Sabha in March-April, 1960. They are glad to observe that the recommendations contained in the reports have been replied to by Government generally to their satisfaction. There are, however, a few recommendations replies to which have not been accepted by the Committee. The comments thereon are contained in Chapter IV. Detailed comments on a few important recommendations are given in the paragraphs that follow.

2. The Committee, in para 14 of their 76th Report on the Council of Scientific and Industrial Research had expressed the view that it would be conducive to the flow of fresh ideas if the constitution of the Board of Scientific and Industrial Research provided for the retirement of one-third of the members every year, their places being filled up by new nominations. They further observed that in proper cases a retiring member or members might also be renominated. Again, in para 17 of the Report they considered that as in the case of the Board of Scientific and Industrial Research the infusion of fresh ideas in the deliberations of the Research Committees was essential and that it should be secured by constituting the Committee in the same manner as had been suggested in the case of the Board of Scientific and Industrial Research.

The Government in reply have stated as follows:

“The Bye-laws of the C. S. I. R. provide as follows in regard to the composition of the Board of Scientific and Industrial Research:—

“Bye-law 52: The Board shall consist of members representing science, engineering, industry and appropriate Departments of the Government of India and such others as may be nominated by the Government of India.”

*Besides these three reports the Estimates Committee had presented 81st Report on the Ministry of Scientific Research and Cultural Affairs. The Estimates Committee have already presented to Lok Sabha on the 7th September, 1962 their First Report indicating action taken by Government on their aforesaid 81st Report.

Representation of Government Departments and sister research organisations, which are concerned, is more or less fixed and similar is the case with *ex-officio* members. The element of change largely relates to the representatives of science and industry. In actual practice, therefore, even if the principle of 1/3rd membership is laid down, it will be only a case of re-nomination of *ex-officio* members and of representatives of Government departments and sister research organisations concerned: the change will be mostly among the remaining members. The present Bye-law does not place any restriction on the composition of the Board when reconstituted at the end of a period of three years and at every reconstitution, it is not binding to limit the change to 1/3rd, as would be the case if the change is made every year.

The formal introduction of the system of 1/3rd members retiring after every year will require an amendment of the Bye-law referred to, which for the reasons stated above may not be necessary.

Generally speaking the position with regard to the Research Committee is the same as in the case of the B. S. I. R. Unlike the B. S. I. R., however those are not Standing Committees and the entire membership, except the *ex-officio* membership of the Director General, Scientific and Industrial Research, is open to change. These Committees can be reconstituted whenever necessary and new members added or substituted for existing members as the occasion may arise. Depending upon the changing emphasis and the development of various disciplines of science, our practice has been to abolish committees, bring into being new committees or re-constitute committees with altered terms of reference. Any rigid rule for changing only a given number of members annually may not therefore be necessary.

Apart from the above, in the case of both the B. S. I. R. and the Research Committees, a change of members, 1/3rd every year, would involve considerable amount of administrative work. It is felt that the existing procedure ensures continuity on the one hand and on the other does not prevent making changes in the membership periodically, as and when needed."

The Committee have carefully reconsidered the matter and feel that it would be in the larger interest of research if new ideas and thoughts are introduced in the governing bodies from time to time. Having regard, however, to the difficulties pointed out by the Government, the Committee would suggest that if it is not considered

feasible at this stage to make changes in the bye-laws of the C.S.I.R. Government may gradually develop a convention that, as far as possible, one third of the non-official members to be appointed on the Board/Research Committees, as reconstituted from time to time, are new.

3. The Committee had observed in para 99 of their 78th Report on the Secretariat (Scientific Research Wing), Grants-in-aid, National Research Development Corporation of India and Technical Institutions that the strength of Class III and IV staff in the Indian Institute of Technology, Kharagpur was on the high side and had suggested that a job analysis of the work done might be done with a view to effect economies.

Government in their reply of March, 1961 had stated that a large number of Class IV staff had become necessary for security, maintenance and municipal work of the campus of the Institute and in the opinion of the Institute the staff sanctioned was not on the high side. The Institute was, however, prepared to get the job analysis of the work done if Government would make the necessary arrangements for the purpose. Asked to state the arrangements made to get the job analysis done in the Institute, Government have replied in December, 1962 that they were examining the best way of carrying out the job analysis of Class III and Class IV staff employed in the Higher Technological Institutes in consultation with work Study Unit set up in the Ministry of Scientific Research and Cultural Affairs.

The Committee were further informed on 24th December, 1962 that it had been decided to entrust the job-analysis to an officer of the Institute itself and the Institute had been asked to depute immediately an officer to undergo necessary training with the Special Reorganisation Unit of the Ministry of Finance and the Work Study Unit of the Ministry. *The Committee are constrained to note that it has taken the Ministry two years to reach this decision. The Committee hope that no time would be lost in having the training completed and in setting on the task of job-analysis and in effecting due economies in the light of the results of the study.*

4. As regards 83rd Report on National Laboratories and Miscellaneous, reply of Government to one recommendation has not been accepted by the Committee and their comments thereon are given in Chapter IV.

CHAPTER II
RECOMMENDATIONS THAT HAVE BEEN ACCEPTED BY GOVERNMENT

A. 76th Report

S. No. (as in Appendix XXI of the 76th Report)	Reference to Paragraph No. of the Report	Summary of recommendations/ conclusions	Reply of the Government
1	2	3	4
2	16	The Committee suggest that the Research Committees of the CSIR may be made more compact and that they should have sub-Committees composed of specialists in the particular fields to which the schemes relate, for their proper scrutiny. If necessary, the schemes may subsequently be placed before the main Committee for final approval.	The recommendation is accepted. The Research Committees have been made more compact. Prior to 1st April, 1959 there were as many as 25 Committees and two Sub-Committees. Their number is now only 13. The suggestion regarding formation of Sub-Committees is accepted and is already being acted upon in practice. The Civil Engg. & Hydraulic Research Committee, Electrical & Mechanical Engineering

			<p>Research Committee and Chemical Research Committee have constituted Sub-Committees for consideration of schemes pertaining to special fields. The recommendations of these Sub-Committees are placed before the Main Committee for approval. The other Committees are also free to constitute Sub-Committees for particular subjects, if considered necessary by them.</p> <p>[C.S.I.R. letter No. 17/6/60-PC, dated 13-1-1961].</p>
4	18	<p>The Committee suggest that the annual statement of accounts of the Council together with the Audit Report thereon may be laid before the Parliament regularly from this year onwards.</p>	<p>The recommendation is accepted. The Annual Report including the audited statement of accounts as approved by the Governing Body of the Society will be laid before Parliament.</p> <p>[C.S.I.R. letter No. 17/6/60-PC, dated 13-1-1961].</p>
7	24	<p>The Committee recommend that the strength of class IV staff in the CSIR may be reduced by adjustment on the basis of 1 daftri and 1 peon for two sections to begin with.</p>	<p>The recommendations are accepted in principle. Adjustments on the basis suggested are being made and will be gradually extended. Similar steps are also proposed to be taken in all the establishments under the Council of Scientific & Industrial Research.</p> <p>[C.S.I.R. letter No. 17/6/60-PC, dated 13-1-1961].</p>
8	24	<p>The Committee are strongly of the view that the general tendency on the part of various Ministries and</p>	

Departments to engage a large number of Class IV staff especially of an unproductive character should be discouraged and recommend that the total number of Class IV staff for various Sections in a Secretariat organisation should not exceed the limit of one per Section.

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The Committee recommend that a decision on the question of bringing Publications Directorate, INSDOC, NPL, INSDOC Library and the Information Service under one wing as recommended by Dr. K. S. Krishnan in his report to the Council may be expedited.

In the Third Five Year Plan period, it is envisaged that a separate building will be put up in the campus of the National Physical Laboratory for the Publications Directorate. When the Directorate shifts to the new building contemplated, it will be near enough to INSDOC and NPL-INSDOC Library, and collaboration between the units would be achieved.

[C.S.I.R. letter No. 17/6/60-PC, dated 13-1-1961].

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The Committee suggest that the selection of newspapers in which advertisements for recruitment in respect of all-India posts under the CSIR

Action has been taken as recommended by the Estimates Committee and the number of newspapers has been increased from 10 to 16 with 22

are published should be more broad based than at present so that all the areas are adequately served and if possible every State could be served at least by one of the local papers.

The Committee would like to see that the new entrants in the National Laboratories looked more for prospects within the Laboratories than outside.

centres of publication, *vide* list attached*.

[C.S.I.R. letter No. 17/6/60-PC, dated 13-1-1961].

During the past few years, a number of measures have been taken by the Council of Scientific & Industrial Research with a view to improving the service conditions of scientists working in National Laboratories/Institutes of the Council of Scientific and Industrial Research such as, revision of pay scales of Scientists like Assistant Directors, Senior Scientific Officers etc., special 'Merit' promotions for outstanding contribution, sanction of advance increments, facilities for patenting inventions, sharing of royalties and premia etc. Research Scientists are eligible to be continued in service upto the age of 60 years. A Superannuation Scheme involving pension benefits has also been recently approved. With these steps now there are better prospects for the scientists within the labo-

*See Appendix I.

ratories. It may also be stated that service conditions of scientists in the laboratories is a matter which is continually under study in the light of the Scientific Policy Resolution of the Government.

[C.S.I.R. letter No. 17/6/60-PC, dated 13-1-1961].

The Committee would like to stress that greater efforts should be made to foster a true spirit of research which would secure to the country its proper place in the scientific world within a measurable period of time. The industrial establishments in India, barring a notable few, have not shown the same interest in research as their counterparts in other countries have done. In such circumstances, the need for National Laboratories to secure to research its proper place and role in national development is ever so much greater. The extent to which they inspire a feeling of confidence among the scientific world in providing a pro-

The observations made by the Estimates Committee have been communicated to the Directors of National Laboratories and they have been requested to make continual efforts in the direction indicated by the Committee.

[C.S.I.R. letter No. 17/6/60-PC, dated 13-1-1961].

per climate for research is a measure of their utility.

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The Committee consider that greater attention should be paid to the provision of refresher courses|specialised courses for the staff of the National Laboratories by industries and educational institutions and that such courses should be held on a regular and systematic basis in order to keep the members of the staff and men from industry abreast of the latest developments and techniques.

The recommendation is accepted in principle. While the laboratories which have been established earlier have been organising some course or the other for training of their staff and also persons sponsored by industries and educational institutions, the newer laboratories have not yet done so for obvious reasons.

Where it has been found that it has been of benefit, regular courses are being held; as for instance, refresher course in 'Electro-plating' at the Central Electro-Chemical Research Institute, Karaikudi, and the 'Fruit Technology' course at the Central Food Technological Research Institute, Mysore.

The laboratories also supplement the refresher courses with other measures such as deputation of their own staff for training at various places, both in India and abroad, and acceptance of staff from industries to work in the laboratories so that they may learn the develop-

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The Committee recommend that the National Laboratories should have a planned training programme for their Class IV staff. They also recommend that the question of reserving a certain percentage of posts in Class III, to be filled up in suitable cases by promotion from Class IV staff when they come up to the requisite standard, should be sympathetically considered.

ments and techniques in the laboratories.

[C.S.I.R. letter No. 17/6/60-PC, dated 13-1-1961].

The recommendation of the Committee has been brought to the notice of the Directors of National Laboratories for suitable action. It may be mentioned in this connection that in the CSIR Class III & Class IV comprise both non-technical and technical categories, namely:

(i) *Non-technical:*

Class III L.D.C./U.D.C. etc.
Class IV Daftri, Peon, Farrash, sweeper etc.

(ii) *Technical:*

Class III Laboratory Assistant/Overseer, Electrician, Mechanics etc.

Class IV Laboratory bearer/Attendant, Khallasi, gasman etc.

Non-Technical posts:

In so far as promotion of Class IV employees to Class III on the non-

technical side is concerned, the post to which they may be promoted is that of L.D.C. A₃ in the Government of India the minimum qualification for appointment to the post of LDC is Matriculation and the passing of a typing test. Such of the Class IV employees as fulfil these requirements are appointed LDC. It may be mentioned that in the category of Class IV itself, the scale of pay of Daftri is higher than that of other categories. For the post of Daftri the minimum qualification is Middle-pass. Such of the Class IV employees, other than daftries, who fulfil this qualification or pass a test of Middle standard are promoted as daftries.

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Technical posts:

In class III posts, in some cases minimum qualifications are necessary, such as Inter Science in the case of Laboratory Assistants, or a diploma in the case of Overseers. In some cases, such as Mechanic and Electrician, the necessary experience and skill are essential. Normally, no one possessing the qualifications or the experience and expert skill

required for Class III posts offers himself for a Class IV post initially.

Within the Class IV category itself, however, where there is a difference in the scale of pay, e.g., in the case of laboratory bearer and laboratory attendant, the former is promoted to the post of laboratory attendant after gaining the necessary experience.

[C.S.I.R. letter No. 17/6/60-PC, dated 13-1-1961].

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The Committee suggest that the question of providing pensionary benefits as an alternate (optional) scheme for contributory provident fund for its employees may be considered by the C.S.I.R.

The Governing Body of the Council of Scientific and Industrial Research has approved the grant of pensionary benefits to the Council employees and necessary orders in this behalf are being issued.

[C.S.I.R. letter No. 17/6/60-PC, dated 13-1-1961].

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The Committee consider it unfortunate that there has been slow progress of the work of construction of staff quarters for the employees of the

The recommendation is accepted. All possible efforts to accelerate the building of staff quarters are being made and a provision of Rs. 4 crores

National Laboratories, which was entrusted to the C.P.W.D. Now that the CSIR has assumed the responsibility for carrying out the entire work of construction itself, the Committee trust that no efforts would be spared to see that the targets laid down under the housing programme during the Second Plan are achieved.

The Committee suggest that adequate provision for housing facilities for the staff working in the National Laboratories should be included in the Third Plan.

The Committee suggest that the houses for different categories of staff should not be built in separate blocks or areas, but they should be suitably interspersed with common facilities such as dispensaries, libraries, recreation centres, etc. Such a dovetailing has the added advantage of discouraging class consciousness.

The Committee suggest that the technical posts in the National Laboratories is done on the basis of specific qualifications and specialisa-

has been proposed for the Third Five Year Plan period.

[C.S.I.R. letter No. 17/6/60-PC, dated 13-1-1961].

Recruitment to Senior Scientific and technical posts in the National Labs. is done on the basis of specific qualifications and specialisations

posts under the CSIR may be analysed so that suitable steps can be taken to improve the position without affecting the efficiency adversely.

tion needed for each post. As fulfilment of these requirements is the sole criterion for recruitment to such posts, it has been decided not to make any other restrictions for appointment to these posts.

As regards Class III and Class IV posts the reservations in favour of Scheduled Castes/Tribes candidates have been prescribed as laid down by the Government of India and detailed instructions have been issued to the Directors of National Laboratories in this behalf. An analysis made in regard to the poor representation of candidates from S.C./S.T. communities in these posts shows that candidates possessing the necessary qualifications for such posts as S.S.A./J.S.A., Overseer etc. or the necessary skill and experience for such posts as Welder, Fine Mechanic, Mechanic, Electrician etc. are not readily available from these communities in the required number. It is hoped that through

the various technical training schemes of the States and the Central Govt. and the increasing number of polytechnics in the country, S.C./S.T. candidates with the required qualifications, skill and experience will become available in larger numbers.

The C.S.I.R. has also sanctioned a scheme of Apprentices for such trades as Foundry, Welding, Smithy, Carpentry, Fitting, Machine Drawing, Glass Blowing etc. The aim of this scheme is to train these Apprentices as highly skilled workmen and upon successful completion of their training to make use of their services in the workshops of the National Laboratories as far as possible. Appointments to all such posts as well as all Class IV is made by the Directors of National Laboratories. Their attention has been drawn to the observations made by the Estimates Committee and they have been requested to take all possible steps to bring up the representation of S.C./S.Ts. to the required level. They have in particular been asked that Apprentices under the scheme mentioned above should

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The Committee suggest that the reasons for the appreciable fluctuations in administrative expenditure and its high rate should be carefully analysed and necessary measures taken to reduce the percentage of expenditure on administration. They also suggest that the feasibility of fixing a suitable maximum limit to this percentage may be examined in consultation with the Ministry of Finance.

be taken from Scheduled Caste/ Scheduled Tribes communities in sufficient numbers so that after training they may be available for appointment against regular posts.

[C.S.I.R. letter No. 17/6/60-PC, dated 13-1-1961].

The variation in the same laboratory from one year to another is due to the fact that in arriving at the percentage of expenditure, the total expenditure, including capital, has been taken into consideration. Capital expenditure, unlike recurring expenditure, is susceptible to considerable variation. As regards variation between different laboratories, this is due to the fact that some are in the planning stage, while several others are still in the process of development and the full technical level of work has not been reached. In the initial stages of planning, the administrative cost tends to be somewhat high as, while certain essential ministerial establishment has to be provided from the

start, the recruitment of technical staff and the procurement and installation of equipment etc. progress gradually, according as facilities for conducting research develop. When the laboratories reach the stage of optimum development comparable to their counterparts in other countries, the percentage of administrative expenditure decreases.

It may be added that scales of establishment were laid down while fixing the strength of house keeping and accounts sections of each laboratory in consultation with F.A. to CSIR. It has been decided to review the present strength with a view to effecting as much economy as possible with due regard to the volume of work and its quick and efficient disposal. A committee consisting of Secretary, Council of Scientific & Industrial Research, Financial Adviser to Council of Scientific & Industrial Research and a Technical Officer has been appointed recently by the Finance Sub-Committee to undertake the review. Every opportunity of reducing the adminis-

trative cost is taken and the matter is continually kept in view.

[C.S.I.R. Letter No. 17/6/60-PC, dated 13-1-1961].

24 The Committee recommend that suitable measures should be taken to avoid shortfalls in expenditure of the CSIR, as compared to the budget estimates.

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The National Laboratories have been given necessary instructions from time to time to help them in the preparation of budget estimates on a realistic basis. These instructions are also incorporated in the 'Budget' Manual of the Council of Scientific & Industrial Research. The question of surrender of large sums provided in the budget for the various laboratories was discussed at the Directors' Conference held in June, 1960. The Directors agreed that the estimates of funds would be framed by them in future after taking into consideration the factors pointed out by the Estimates Committee. A circular letter has also been issued to the Directors drawing their attention to the observations of the Estimates Committee and requesting them to frame their budgets on a realistic basis.

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The Committee would like to suggest that the CSIR should endeavour to dispel any misgivings in the minds of the industry in regard to the research programmes of the National Laboratories/Institutes not being related to the needs of the country, and should associate the industry as closely as possible with research projects at all stages and thus create a feeling of belongingness of the National Laboratories/Institutes in the minds of the industry.

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51

The Committee recommend that the feasibility of joint planning of programmes by the CSIR, and the Defence Science Organisation may be examined by Government.

[C.S.I.R. letter No. 17/6/60-PC, dated 13-1-1961].

The recommendation is accepted. In this connection attention is invited to the reply given to Para 72 of the Report.

[C.S.I.R. letter No. 17/6/60-PC, dated 13-1-1961].

The Defence Research & Development Organisation (Ministry of Defence) to whom this recommendation was referred have intimated that the question of joint planning of programmes in matters of common interest between the CSIR and that Organisation is being examined.

52

Under present arrangement as much as possible collaboration is being maintained between National Laboratories and Defence Laboratories. Specific projects of the Organisation are being passed on to the National Laboratory concerned for develop-

ment. The Organisation has also formed *ad hoc* joint groups with some of the National Laboratories. Such a group has been formed with National Metallurgical Laboratory, Jamshedpur, to consider the metallurgical requirements of defence and allotment of effort in the appropriate laboratories. The Ministry of Defence is also represented on the Executive Councils of the National Laboratories concerned namely:—

1. National Physical Laboratory, New Delhi.
2. National Chemical Laboratory, Poona.
3. Central Glass & Ceramic Research Institute, Calcutta.
4. National Metallurgical Laboratory, Jamshedpur.
5. Central Electro-chemical Research Institute, Karaikudi.
6. Central Electronics Engineering Research Instt., Pilani.

Also the Director-General, Scientific & Industrial Research and Dr. K. S.

Krishnan, Director, National Physical Laboratory, are members of the Defence Research & Development Committee. The Scientific Adviser to the Minister of Defence is a member of the Governing Body and Board of Scientific and Industrial Research and various other Committees of the Council of Scientific & Industrial Research.

[C.S.I.R. letter No. 17/6/60-PC, dated 13-1-1961].

Further information called for by the Committee

The result of examination of the question of joint planning of programmes in matters of common interest by the Defence Research and Development Organisation (Ministry of Defence) may please be intimated.

(L.S.S. O.M. No. 27-ECII/60 dated 20-4-1961).

The Ministry of Defence have further intimated that inasmuch as the R. & D. Organisation of the Ministry is doing substantial work of a classified nature especially in specified fields such as armaments, explosives, psychology as applicable to Defence problems, ballistics radiation medicine etc., which are of primary interest to Defence, co-ordination in these subjects is not desired by the Ministry of Defence. However, in general fields of research the R. & D. Organisation of the Ministry are already facilitating effective coordination with the CSIR in the following manner:—

- (a) By associating CSIR and other bodies with the various

Committees and panels of the R. & D., the most important being the Defence Research and Development Advisory Committee. Similarly, the R. & D. Organisation also participates in several committees and panels of the CSIR as well as the Executive Councils of the National Laboratories.

(b) By mutual participation in each others' scientific seminars and symposia and other conferences.

(c) By mutual exchange of reports on scientific/technical work and by striving for contacts by the R. & D. Establishments on working levels, in the C.S.I.R.

(d) By the formation, wherever considered necessary, of Advisory Groups, as in the metallurgical field in association with

The Committee cannot overstress the need for closer co-ordination in research work between the National Laboratories and other Research Institutions in the country with a view to avoiding unnecessary duplication and waste of research effort, and they, therefore, recommend that suitable measures should be taken to ensure maximum coordination in this direction.

National Metallurgical Laboratory.

The Ministry of Defence do not see any lack of co-ordination in so far as non-classified scientific research is concerned between the R. & D. Organisation and the CSIR. However, they have no objection to initiate further studies by which duplication of work in these two organisations can be eliminated, for the better and effective utilisation of talent and available resources of the country.

[C.S.I.R. letter No. 17-6-60-PC, dated 13-1-1961].

21

There is close cooperation and coordination between the CSIR and the Department of Atomic Energy. Dr. H. J. Bhabha, Chairman of Atomic Energy Commission, is a member of the Governing Body of the Council and the Board of Scientific and Industrial Research. Dr. K. S. Krishnan, Director of the National Physical Laboratory, acts as a part-time member of the Atomic Energy on many committees of the CSIR. Similarly, some scientists from the National Laboratories are members on various committees of the Atomic

1	2	3	4
			Energy Commission. A statement is enclosed.*
			[C.S.I.R. letter No. 17-6-60-PC, dated 13-1-1961].
2	53	The Committee suggest that efforts should be made to sponsor more of research centres wherever conditions are favourable for research.	The recommendation is accepted. The Council will gladly consider schemes from any centre where conditions are favourable and the basic requirements are available.
			[C.S.I.R. letter No. 17-6-60-PC, dated 13-1-1961].
29	54	<p>(a) The Committee suggest that the proposed Reviewing Committee should consist of eminent men from science and industry including one or two outstanding scientists from abroad.</p> <p>(b) The Committee also consider that it would be profitable to have the same Reviewing Committee or an equally high-powered Committee to scrutinise research programmes formulated for the Third Five Year Plan.</p>	<p>The recommendations in regard to the composition of the Reviewing Committee will be kept in view while appointing the Reviewing Committee in 1962 for reviewing the work of Council of Scientific and Industrial Research and its National Laboratories.</p> <p>As regards 3rd Five Year Plan proposals of Laboratories, these have, after scrutiny by the respective Executive Councils/Planning Committees, been forwarded to the</p>

The Committee consider that interchange of staff between the National Laboratories and the Universities as also between the National Laboratories and allied technical departments of the Government and Public Undertakings for certain specified periods may be of use from several aspects and, therefore, recommend that the feasibility of this proposal may be examined.

Planning Commission for consideration by the Scientists' Panel of the Commission.

The future programme of work of the Laboratories will also be a matter for consideration by the proposed Reviewing Committee.

[C.S.I.R. letter No. 17/6/60-PC, dated 13-1-1961].

The recommendation is acceptable in principle but its implementation presents certain practical difficulties. Each employing agency is governed by its own rules on establishment matters, and there is disparity in the scales of pay as well as in other conditions of service. This is one of the questions that engaged the attention of the Scientific Personnel Committee and the Committee's tentative conclusion is that the solution appears to lie in the establishment of a "Pool of scientific workers for the whole country" with a standard structure of grades, including uniform schemes for leave, provident fund, pension, medical care, housing and other benefits so

*See Appendix II.

that each scientific worker can carry his benefits with him on transfer from one agency to another. This matter would require further detailed consideration when the Scientific Personnel Committee has submitted its report.

[C.S.I.R. letter No. 17/6/60-PC, dated 13-1-1961].

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The Committee consider that it is important that all research workers from Universities or other educational institutions who come to Laboratories should be given a full programme of work and that it should be ensured that they derive full benefit from such association.

The recommendation is accepted. In so far as para 57 is concerned, Directors of National Laboratories have been requested to take suitable steps to ensure compliance with the suggestion made.

[C.S.I.R. letter No. 17/6/60-PC, dated 13-1-1961].

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The Committee find that while some Laboratories have been recognised for post-graduate research work by a few Universities, others have been recognised by a large number of Universities. The Committee see no reason why there should be such a diversity in this respect. They

Recognition of National Laboratories for purposes of post-graduate study and research by different Universities is being pursued. As far back as 1953, the Inter-University Board of India made a recommendation for such recognition. In 1955, Special Committee of the Governing Body

consider that the question of recognition of National Laboratories/Institutes by the various Universities for research work needs further attention and suggest that necessary steps may be taken to bring about greater uniformity in the matter as early as possible.

of the Council of Scientific & Industrial Research, while noting that the Calcutta University had decided that M.Sc.s. from that University working in any all-India Institution can submit thesis for Ph.D. or D.Sc. degree on the basis of this research, recommended that the Council of Scientific & Industrial Research should address the Inter-University Board and the University Grants Commission suggesting that other Universities should also extend this facility. This was done and the Inter-University Board reiterated its previous resolution of 1953. The University Grants Commission also passed a resolution to the same effect. The individual laboratories pursued the matter further with the Universities. As a result, recognition has been accorded by various Universities in respect of several National Laboratories. It may be mentioned that the resolutions of the Inter-University Board and the University Grants Commission are not mandatory as the decision in this matter rests entirely with the Universities which are autonomous bodies. The laboratories have, therefore, been advised to pursue the

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matter further with the Universities. It is expected that as the laboratories develop, more and more Universities will accord the necessary recognition.

[C.S.I.R. letter No. 17/6/60-PC, dated the 13-1-1961].

33 58

The Committee consider that the extent and scope of collaboration between the National Laboratories and the Universities need to be expanded very considerably.

As regards para 58, collaboration between the National Laboratories and Universities is largely maintained through personal contacts between scientists. It is the accepted policy of the Council to support scientific research in Universities and to this end, besides sanctioning grants for research schemes, the CSIR is (a) giving facilities to University workers for use of expensive equipment available in the National Laboratories (b) encouraging and financing the holding of symposia and seminars in the National Laboratories and Universities on subjects of topical interest to which scientists from Universities are also invited. Various Universities have recognised

National Laboratories for post graduate studies. Apart from this, scientific workers in the National Laboratories have delivered lectures in Universities and University Professors have worked in National Laboratories. Examples of such exchange are given below:—

(i) *Central Drug Research Institute, Lucknow:*

1. Nine officers of the Institute have delivered lectures at various Universities.

2. Testing of amoebicidal compounds referred to from Calcutta University, Calcutta, Vikram University, Ujjain, Estimation of iron, serum sodium and potassium and electrophoretic studies in collaboration with Lucknow University have been completed. Antidiabetic compounds referred to from Delhi University and active principles from *Thevetia neriifolia* (Kaner) referred to from Andhra University have been carried out. Cytochrome 'C' from Beef heart has been prepared and supplied to Botany Deptt., Lucknow University.

3. Professors of various Universities have worked in the Institute in different fields for varying periods and special refresher courses in Pharmacology have been held for the nominees of various Veterinary Colleges.

(ii) *Central Building Research Institute, Roorkee.*

1. 16 officers of the Institute have delivered 83 lectures in the Universities.

2. Two teachers from the M.B.M. Engineering College, Jodhpur and one teacher from Thapar Institute of Technology, Patiala worked at the Institute on experimental stress analysis and prestressed concrete.

(iii) *Central Electro-Chemical Research Institute, Karaikudi:*

1. Shri K. C. Tripathi of Banaras Hindu University stayed for one month at the Institute and his work was presented to the Symposium on 'Elec-

tro-deposition and Metal Finishing (1957).

2. Shri H. C. Sur of University of Delhi stayed for one month at the Institute and the results of his work have been incorporated in the paper "Redoxokinetic and Impedance titration, New Analytical techniques".

(iv) *Central Electronics Engineering Research Institute, Pilani.*

1. Two professors from the Indian Institute of Science, Bangalore and the Institute of Radio Physics and Electronics, Calcutta visited the Institute and gave series of lectures on 'Microwave Tubes' and 'Transistor Physics.'
2. Two senior Officers from the Institute delivered 50 and 30 lectures respectively to post graduates in Birla College of Engineering affiliated to the Rajasthan University.

(v) *Regional Research Laboratory, Jammu:*

Officer-in-Charge, delivered 3 extension lectures under the auspices of Jammu & Kashmir University at Govt. Gandhi Memorial College, Jammu in early 1960 on Drugs Resources of J. & K., Cultivation of

Medicinal Plants and introduction of exotic species in J. & K. and Role of Indian indigenous drugs in modern medicine.

(vi) *Indian Institute for Bio-Chemistry and Experimental Medicine, Calcutta:*

1. Dr. D. K. Roy, Senior Scientific Officer annually delivers 8 to 12 lectures in the Bio-Chemistry and Applied Biochemistry Section of the Calcutta University as an honorary lecturer.
2. During 1956-59 Dr. J. J. Ghosh, Lecturer University College of Science and Technology, University of Calcutta collaborated in the work of the Institute and guided the work on two projects viz. (i) Brain Metabolism (ii) metabolic studies on *Leishmania* Donovanii.
3. Dr. Roy worked on the Project 'Biosynthesis of Pencillin' in collaboration with Dr. M. Chakravarti,

Reader of Applied Chemistry, University College of Science for Technology, Calcutta University during 1958-59.

4. The Institute offered facilities to research workers from Calcutta University and four such workers were receiving such facilities in the Institute.

(vii) *Central Public Health Engineering Research Institute, Nagpur:*

Two scientific workers of the Institute delivered 12 lectures in collaboration with Nagpur University authorities.

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(viii) *National Metallurgical Laboratory, Jamshedpur:*

1. The Director and as many as 8 Senior Officers of the Laboratory have delivered 53 lectures on different metallurgical topics at different Universities and Institutes.
 2. Six professors of different Universities/Institutes availed themselves of the training facilities offered by the Laboratory.
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(ix) Regional Research Laboratory, Hyderabad:

1. Dr. P. M. Bhargava delivered a series of 14 lectures on "Enzymes in relation to pharmacology" to the M.D. (Pharmacology) students of the Osmania Medical College, Hyderabad and two lectures on 'Physiological, structural, chemical and biochemical characteristics of spermatozoa' to the trainees at the Artificial Insemination Centre, Deptt. of Animal Husbandry, Govt. of Andhra Pradesh, Hyderabad.
2. Dr. B. S. R. Sastry took part in the discussions (i) on the properties of building bricks made in Hyderabad and (ii) on the possibilities of the preparation of light weight aggregate from clinker at the Engineering Research Laboratory, Hyderabad and he also delivered a series of 4 lectures on 'crystal chemistry applied to ceramics' at the Deptt. of Chemical Technology, Osmania University, Hyderabad.

**(x) Central Leather Research Institute,
Madras:**

1. The Deptt. of Leather Technology of Algappa Chettiar College of Technology (University of Madras) is integrated with the C.L.R.I. to conduct courses towards B.Sc. (Tech) Degree and also Research degrees such as M.Sc. & Ph.D.
2. The research departments of the Madras University in Physical Chemistry, inorganic and analytical chemistry, bio-chemistry and physics are located in the building adjoining to the Institute. This enables the Research Workers in all these departments to avail of the facilities available in the Institute and vice versa—facilities for books, discussion, seminars, exchange of thoughts etc. for creating a proper research atmosphere. Apart from the Director being the Honorary Professor and a Senior Officer of the Institute being the Honorary Reader in the Deptt. of Leather Technology of the University of Madras, the courses are actually conducted by the senior officers competent to teach their particular subject such as bio-chemistry, bacteriology etc.

(xi) *National Chemical Laboratory, Poona:*

1. 13 members of staff delivered about 23 lectures in various universities during 1960.

Following members of staff of various institutions were given facilities at the Laboratory:

- (a) Shri K. K. Kumaran from the Kerala Veterinary College, Trichur, has been trained in the analysis of trace constituents in plant products.
- (b) Dr. N. C. Sogani, Govt. College, Ajmer worked in Essential Oils Division during 1952—56 and obtained Ph.D. degree.
- (c) Students from Agricultural College, Poona, Veterinary College, Trichur, were given facilities for training in Biochemical methods.
- (d) One lecturer from Baroda University studied fermentation

method in the Biochemistry Division.

2. Following members of staff from other institutions worked in the National Chemical Laboratory during the year:

(a) Dr. Tripathi of the University of Gorakhpur was imparted a working knowledge of the various instrumental technics used in Inorganic Chemistry Division.

(b) Since 1959 Prof. B. S. Tyagi, M.M.H. College Ghaziabad works in Essential Oils Division during the vacations.

(c) Prof. S. G. Tandon, Lecturer, Govt. College, Bhopal worked in Essential Oils during the vacations in 1958, 1959 and 1960.

(d) Mr. R. H. Jog of M.E.S. College, Poona, is working as guest worker on studies of films by Electron Diffraction and other methods for Ph.D. work in Physical Chemistry Division.

(e) Mr. Hakam Singh, Lecturer in Chemistry Delhi University was trained in the Radio-active

tracer technique for a period of three months in Physical Chemistry Division.

[C.S.I.R. letter No. 17/6/60-PC, dated 15-2-1961].

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The Committee suggest that the reasons for the non-utilisation of funds under "Fellowships and Scholarships" should be investigated without delay and vigorous steps taken to ensure that the funds allotted under this head are utilised in full in future so that a number of scientific and technological workers both within and outside the Laboratories are able to take advantage of the scheme.

The action suggested by the Estimates Committee has been taken. While on the one hand the provision for award of Fellowships has been raised on the other hand steps have been taken to ensure that the estimates are realistic and that the provision is fully utilised. For 1960-61 a provision of Rs. 5.800 lakhs was made in the estimates and the same provision has been retained in the revised estimates also; the expenditure for the first six months being to the extent of Rs. 2.782 lakhs. It is hoped that the total provision of Rs. 5.8 lakhs will be utilized.

[C.S.I.R. letter No. 17/6/60-PC, dated 13-1-1961].

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The Committee consider that it would be worthwhile to examine what have contributed to the shortfalls in

Instructions have been issued from time to time, in the light of orders received from the Government of

expenditure from the budgeted amounts on account of pilot plants during the first three years of the Second Plan and eliminate all the reasons responsible therefor since such short-falls inevitably retard the development and commercial exploitation of the processes.

Further information called for by the Committee.

Please state if the causes of shortfalls in expenditure have been analysed and steps taken to amend the procedure in such a manner that preliminary formalities for new works and projects were completed in good time.

[L.S.S. No. 27-EC II/60 dated the 20th April, 1961].

India, for framing the estimates on a realistic basis and efforts are constantly being made in this direction.

[C.S.I.R. letter No. 17/6/60-PC, dated 13-1-1961].

On analysing the causes of shortfalls in expenditure, it has been observed that shortfalls were largely due to reasons beyond the control of the laboratories, namely procurement of equipment through D. G. S. & D. and obtaining supplies of stores from foreign countries (due to formalities to be observed in obtaining import licence, release of foreign exchange etc.) and delay in construction works on account of shortage of cement/ steel etc. The laboratories have been instructed to take into consideration all these limiting factors while formulating their budget estimates so that the short-falls in expenditure at the end of the financial year are kept as far as possible at the minimum.

The position has considerably improved in the last two years of the second

five year plan i.e. 1959-60 and 1960-61. From the following statement of sanctioned estimates, finally modified estimates, and actual expenditure under Recurring & Capital heads during these two years, it will be seen that the short-fall in expenditure from the sanctioned estimates (as shown in column 5) was only 3.2% and 2.9% respectively, as against 30.5%, 13.5% and 14.5% during the preceding three years:—

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STATEMENT					
Budget-head	Sanctioned Estimates	Finally modified Estimates	Actual Expenditure.	Variation from sanctioned Estimates More (+) Less (—)	Variation from the finally modified Estimates More (+) Less (—)
1959-60					
Figures in lakh rupees					
A. Recurring	366.780	366.780	363.664	(—) 3.116	(—)3.116
B. Capital	225.000	225.000	208.802	(—)16.198	(—)16.198
Total A & B	591.780	591.780	572.466	(—)19.314	(—)19.314

			1960-61		
A. Recurring	411.047	437.759	430.875	(+)19 828	(—)6.884
B. Capital	288.500	250.000	248.603	(—)39.897	(—)1.397
Total A & B	699.547	687.759	679.478	(—)20.069	(—)8.281

[C.S.I.R. letter No. 17/6/60-PC, dated 21-9-1961].

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The Committee consider it rather unfortunate that in some cases the results of research should have been hurriedly released to industry for exploitation, for such practice would make entrepreneurs hesitant in taking up research results for commercial application. The Committee hope that the practice of testing processes on pilot plants before their release and making sure that they were acceptable and economical, which had since been adopted, will be strictly adhered to.

The recommendation of the Committee has been noted.

[C.S.I.R. letter No. 17/6/60-PC, dated 13-1-1961].

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It is regrettable that adequate attention and care had not been given to the planning and execution of the CSIR's research programmes and

The recommendation is accepted. With a view to removing the existing bottlenecks in the way of commercial exploitation of the processes

schemes prior to the last three years. The Committee recommend that concerted and effective measures should be taken to remove any bottlenecks that may still exist in the way of the commercial exploitation of the processes developed at the National Laboratories.

developed at the National Laboratories, the Chairman, National Research Development Corporation (Minister for Industries) has addressed all the National Laboratories requesting them to examine the work done in their laboratories since their inception and advise on the processes, projects or patents which could be taken up for commercial development in some of the existing public sector undertakings or for the implementation of which even new undertakings in the public sector could be considered. This information is being collected with the intention of giving a fillip to industrial research by starting commercially feasible projects in the public sector wherever possible.

The Chairman of the N. R. D. C. has also constituted a Committee to consider a proposal for establishing a Central Workshop for manufacturing Pilot Plant for research work in Government and private research institutes in the country. The proposed Central Workshop would also

The Committee would like to observe that if suitable processes have in fact been developed for the production of infant food or baby food and Vitamin 'C' by the National Laboratories, it is really a matter of concern that licences for their manufacture should have been given to foreign manufacturers. The Committee suggest that the circumstances leading to the issue of licences in these cases should be investigated.

assist other engineering workshops in the private sector industries, in the production of pilot plant as far as possible. The research institutions in the country have been consulted with a view to framing detailed proposals in this behalf.

[C.S.I.R. letter No. 17/6/60-PC, dated the 15th February, 1961.]

The suggestion of the Estimates Committee about the circumstances leading to the issue of licences for the manufacture of infant food and Vitamin 'C' has been referred to the Ministry of Commerce & Industry for necessary action.

The circumstances leading to the issue of licences to foreign manufacturers for the manufacture of Infant Food and Vitamin 'C' as intimated by Ministry of Commerce & Industry are reproduced below:—

INFANT FOOD: The Central Food Technological Research Laboratory has evolved a process for the manufacture of infant milk food from buffalo milk and this process is at present being exploited by M/s. Kaira Dt. Cooperative Milk Producers Union Ltd., Anand. They

have been granted a licence under Industries (Development & Regulation) Act for producing 2,500 tons of baby food per annum. Permission has also been granted to M/s. Glaxo Laboratories to set up a factory at Aligarh with an installed capacity of 2,500 tons of infant milk food per annum. The total demand in the country for 'Infant Milk Food' is about 5,000 to 6,000 tons per annum and Kaira Dt. Co-operative Milk Producers Union will not therefore, alone be able to meet this demand. The scheme of M/s. Glaxo Laboratories did not involve any foreign exchange for the import of capital goods as this was provided by their parent company. Their project also included intensive development of dairy farming round about Aligarh with the help of the Cooperative Department of U. P. Government. The development of infant milk and food industry has received great impetus on account of the experience from well-known manufacturers like M/s. Glaxo Laboratories Ltd. Another foreign firm M/s. Horlicks

Ltd. has also been allowed to produce infant milk food (Melcose Brand) having an installed capacity of 228 tons per annum. They will be producing Horlick's malted milk at their factory at Nabha. These schemes have been approved by Government of India after thorough examination and keeping in view the fact that special efforts have to be made to produce infant milk food in the country to the required extent and thus save considerable foreign exchange which is being used to import this item from abroad. A Committee will shortly be appointed to assess the present development of milk food industry in India and also to make recommendations regarding necessity for further foreign collaboration, if any.

VITAMIN 'C': In early 1958, two applications were received for the manufacture of Vitamin 'C', one from M/s. Sarabhai Merck for a capacity of 60 tons/annum in collaboration with M/s. E. Merck Darmstadt of West Germany and another from M/s. Alta Laboratories for a capacity of 48 tons/annum based on a process developed by the National Chemical Laboratory, Poona. Both

the schemes were considered by the Licensing Committee and that of M/s. Alta Laboratories was approved for a capacity of 25 tons/annum of Vitamin 'C' and of Sarabhai-Merck for a capacity of 60 tons/annum on the understanding that imported raw materials for the production of only 25 tons of Vitamin 'C' will be made available till such time as the demand justified an increase of production. The total capacity was kept down to 50 tons/annum as this was considered to be the level of requirements of the country at that time. M/s. Sarabhai-Merck have gone ahead with the project and intimated us that they will be starting their first and second phases of production by December, 1960 i.e. starting from imported sorbitol. They have been allowed to import for this period sorbitol to produce at the rate of 25 tons of Vitamin 'C' per annum. They have also arranged for the import of equipment to switch over to the production of Vitamin 'C' from an entirely indigenous raw material

glucose. Once, this is achieved, their capacity which is now being kept down to 25 tons/annum will go up to 60 tons/annum as the raw material required will be indigenously available. M/s. Alta Laboratories did not go ahead with the scheme, but later on another similar scheme of M/s. Biochemical & Synthetic Products Ltd., Hyderabad was approved by the Licensing Committee for a capacity of 25 tons/annum to be worked on the process developed by the National Chemical Laboratory. Even, this firm showed little interest in going ahead with the project and have replied to the conditional letter stating that they have not been able to finalise the agreement with the National Research Development Corporation on account of the cost of the whole scheme going much higher than it was originally envisaged. The demand for Vitamin 'C' is rising rapidly and a target of 125 tons/annum has been fixed for the Third Five-Year Plan period. It will, therefore, be necessary to set up an additional capacity for the production of Vitamin 'C'.

As the two private firms who were offered the process developed by the

National Chemical Laboratory are not going ahead with the scheme, the possibility of a public sector project taking up this process was examined. The factory of M/s. Hindustan Antibiotics which is situated close to the National Chemical Laboratory and has experience in fermentation technique was considered to be ideally placed to undertake its manufacture. The Hindustan Antibiotics, have submitted a scheme for setting up a unit for the production of Vitamin 'C' with a capacity of 50 tons/annum based on the process developed by the National Chemical Laboratory which is at present under consideration.

[C.S.I.R. Letter No. 17/6/60-PC, dated the 15th February, 1961].

The Committee consider it unfortunate that such processes as have been proved on a pilot plant scale to be economically suitable for commercial exploitation should remain unutilised. They are of the view that

The need for close co-operation between the National Laboratories and Industry and associating the latter with research projects at all stages is recognised by the C.S.I.R. A few examples of such collaboration over

the solution to this problem lies in closer collaboration between the National Laboratories and industry which could be secured by associating the representatives of the industries concerned with the research projects and schemes at all stages. The Committee are also of the view that public sector industries should show greater willingness to utilise the processes developed at the National Laboratories and should give a lead to the private industries in this respect.

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The Committee suggest that the strength of the Joint Standing Committee for Scientific Research and Industry should be suitably augmented.

the past few years are given in the list* (enclosed).

As regards the recommendation that processes developed by National Laboratories should be taken up for utilisation in the public sector, the Chairman, N.R.D.C. (Minister for Industries) has addressed the National Laboratories, requesting them to examine the work done in their laboratories since their inception and advise on the processes, projects or patents which could be taken up for commercial development in some of the existing public sector undertakings or for the implementation of which even new undertakings in the public sector could be considered. This information is being collected with the intention of giving a fillip to industrial research by starting commercially feasible projects in the public sector where possible.

[C.S.I.R. Letter No. 17/6/60-PC, dated the 13th January, 1961].

The recommendation is accepted and necessary action in this behalf will be taken.

[C.S.I.R. Letter No. 17/6/60-PC, dated the 13th January, 1961].

*See Appendix III.

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42	72	<p>The Committee regret to note that there has been slow progress and not much of active follow-up action in regard to the recommendations made by the Joint Standing Committee in 1957 relating to the following projects.</p> <ul style="list-style-type: none"> (i) manufacture of sulphur from gypsum and pyrites. (ii) economic utilisation of bones for manufacture of fertilisers. (iii) setting up of a plant for recovery of sodium sulphate from salt bitterns. (iv) manufacture of table salt by open pan and vacuum evaporation by Salt Commissioner, Government of India. <p>The Committee consider it to be of vital importance that the recommendations of the Joint Standing Committee are followed up and implemented within the shortest possible time. They suggest that the progress in respect of the above items may be speeded up. They further suggest that the Joint Standing Committee should periodically re-</p>	<p>The present position in respect of items mentioned in the recommendation, as intimated by the Ministry of Commerce & Industry, is as follows:-</p> <p>(i) <i>Manufacture of sulphur from gypsum and pyrites:</i></p> <p>A Company by the name and style of 'Pyrites and Chemicals Development Company Private Ltd.' has been set up as a subsidiary of the National Industrial Development Corporation Ltd., with an authorised capital of Rs. 5 crores for the exploitation of pyrites ores (iron sulphide), large deposits of which have been located at Amjhore in the Shahbad District of Bihar, and the production of elemental sulphur therefrom. The P.C.D.C. Ltd., which propose to adopt the Orkla process for the production of sulphur, have despatched pyrites ores to Norway for large scale tests at the works of M/s. Orklas of Norway. The tests have been found promising but a more extensive test is being planned. If that test yields satisfactory results, a detailed project report will be commissioned.</p>

view the previous recommendations and ensure that they are expeditiously implemented.

Recommendation

1. It is necessary to increase the collection and utilisation of bones to a substantially higher than the present level of less than 40% of the total available.
2. Since the bone industry is dependent primarily on exports and even availability of bone meal, setting up of small crushing units for increasing collection of bones will serve no purpose.
3. Flaying Centres on the model of Gramodyog Kendra of the Village Industries Commission should be set up near all cities and towns.
4. It is necessary to enact legislation to confer ownership of all dead animals on village panchayats, municipalities and other public bodies.

(ii) Economic Utilisation of bones for manufacture of fertilisers:

The Ministry of Commerce and Industry has taken the following action on the recommendations relating to utilisation of bones:—

Action taken

The State Governments have been requested to implement the recommendation as far as possible.

This has been brought to the notice of the Development Wing of the Ministry of Commerce and Industry and will be kept in view while considering applications for licences under the Act for setting up new units.

Khadi and Village Industries section has been asked to take necessary action in the matter. State Govts. have also been asked to consider and implement the recommendation.

State Governments have been asked to consider and implement the recommendations.

5. The adoption of zonal demarcation of the country for purposes of distribution and milling of bones or restrictions on capacity for milling in any region with a view to promote additional capacity elsewhere is not recommended.
6. Every effort should be made to export bone products including bone meal to the maximum possible extent.
7. The Committee is not agreeable to the suggestion that all bone grist or crushed bones should be converted into ossein and gelatine for export.
8. The possibility of production of Dicalcium phosphate from bones is not likely to materialise for the present.
9. There is no scope for production of glue and technical Gelatine from bones.
10. Statutory insistence regarding sterilisation of bone products should not be imposed.

The recommendation has been brought to the notice of the Directorate of Marketing and Inspection of the Ministry of Food and Agriculture.

The recommendation was brought to the notice of the Ministry of F. & A. The Ministry is not agreeable to the export of bones.

Noted.

Noted.

Noted.

Action being taken by the I.C.A.R. in consultation with the Ministry of F. & A.

(iii) *Setting up of a plant for recovery of sodium sulphate from Salt Bitterns:*

The bitterns at Sambhar Lake and Didwana only contain sodium sulphate. The Sambhar Lake Salt source was transferred to Messrs Hindustan Salt Co. Ltd., on 1st January, 1959 and the Didwana salt source was transferred to the Rajasthan Government on the termination of the lease with effect from 1st April, 1960.

The Hindustan Salt Company Ltd., are already recovering some sodium sulphate by an improvised method with the help of natural weather conditions from pan crust. They have under consideration a proposal for putting up a Washery-cum sulphate recovery plant capable of washing 1,000 tons of salt per day and recovering about 11,000 tons sodium sulphate per annum from the salt washings and the bitterns and pan crust available at Sambhar Lake. Quotations have been received in this regard from a West

German firm, and the Board of Directors of the Company are examining the scheme. The Government of Rajasthan are also implementing a scheme for recovery of 5,000 tons of sodium sulphate per annum at Didwana.

(iv) Manufacture of table salt by open pan and Vacuum Evaporation:

The Hindustan Salt Company Ltd. have already installed a pilot plant for manufacture of free flowing table salt of the capacity of 1 ton per day at Sambhar Lake. They have under consideration the installation of a regular plant. The Company is expected to put the salt in the market shortly. Dairy salt of 99.5% purity has already been put in the market.

The suggestion that the Joint Standing Committee for Scientific Research and Industry should periodically review the position has been noted.

The Committee recommend that immediate steps should be taken to energise the activities of the Small Inventions Development Board.

The Invention Promotion Board was established in April, 1959 and placed under the administrative control of the Ministry of Commerce and Industry and attached to the Office of the Development Commissioner for Small Scale Industries. The Board did some preliminary work viz.,

- (i) appointed a sub-committee to examine the nature of inventions quantum of awards, etc., and it has submitted its report.
- (ii) The Board in its meeting held on 17-3-1960 decided to register itself as a Society under Societies Registration Act of 1860 as it was felt that it could function more effectively and autonomously. This recommendation was accepted by the Government and the Board framed the Articles of Association and Rules and Regulations for Society. The Society has since been registered. A whole time Secretary as its executive officer and the necessary skeleton staff under him have been appointed and it is now hoped that this

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would energise the activities of the Board as desired by the Estimates Committee.

[C.S.I.R. letter No. 17/6/60-PC, dated the 13th January, 1961].

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The Committee suggest that greater efforts should be made by the Liaison Officers, to secure offers from industries for the utilisation of the Council's processes.

The recommendation is accepted. The Liaison Officers have been advised to put in greater efforts to secure suitable offers from industries for exploitation of the processes developed in the CSIR Laboratories.

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[C.S.I.R. letter No. 17/6/60-PC, dated the 15th February, 1961].

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The Committee recommend that the various methods of dissemination of the research results should be made use of adequately in a well planned and co-ordinated manner.

The recommendation of the Estimates Committee has been brought to the notice of all Directors of National Laboratories for taking necessary action to implement the same.

[C.S.I.R. letter No. 17/6/60-PC, dated the 13th January, 1961].

The Committee suggest that the reasons for the poor response from industry may be carefully analysed and assessed and positive steps taken to stimulate the interest of industry in the work of the National Laboratories.

[Further information called for by the Committee.]

Please state if the suggestions from the Directors of National Laboratories have since been received and if so, what further action has been taken in the matter.

[L.S.S. O.M. No. No. 27-EC-II/60 dated 20th April, 1961.]

The Directors of National Laboratories have been requested to give their views and suggestions on the recommendation. After receipt of their suggestions further necessary action will be taken.

[C.S.I.R. letter No. 17/6/60-PC, dated the 13th January, 1961.]

On examining the suggestions received from the National Laboratories, it has been observed that the industry is generally slow, as in other countries too, to readily take up and develop the ideas of scientists for the following reasons:—

- (a) the introduction of new materials or new methods always involves some risk and industrialists who have to take the risk are reluctant to do so;
- (b) competition is not yet intensive enough in India to force industrialists into taking up new lines; and
- (c) know-how is often readily available from foreign sources

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and it has the advantage of being based on actual factory experience.

Following steps have been taken to stimulate the interest of industry in the work of the National Laboratories:—

- (i) The Industry is made research conscious through the Technical journals and Bulletins published by various National Laboratories and through seminars, symposia, etc.
- (ii) The processes developed by the laboratories are handed over to N.R.D.C. for commercial utilisation who publish non-technical notes and circulate them to important industries.
- (iii) Sample products of the laboratories are sent to the industries concerned to get them interested in undertaking indigenous manufacture developed at the Laboratories.

(iv) Practical demonstration of the processes are given to the representatives of the industries.

(v) Specific investigations are undertaken on problems proposed by industries and technical know-how provided to them.

(vi) Short term courses of training on various subjects, as mentioned below are undertaken at the laboratories, which are taken advantage of by industries:—

(1) *Central Glass and Ceramic Research Institute, Calcutta.*

(i) Study of raw materials and methods of beneficiation.

(ii) Testing of finished products

(iii) Measurement of physical properties of glass and ceramic products for quality control.

(iv) Furnaces, pyrometry, and refractories used in the construction of various types of furnaces.

(v) Experimental meltings and firings.

(2) Central Leather Research Institute, Madras.

- (i) Training of officers sponsored by organisations connected with the leather industry.
- (ii) Short term refresher courses for the staff working in various regional tanning Institutes.
- (iii) Apprenticeship course.
- (iv) Training of skilled workers.
- (v) Short lecture courses connected with the leather industry.
- (vi) Monthly Practical Demonstrations.

(3) Central Food Technological Research Institute, Mysore.

- (i) Associateship course in Fruit Technology (2 years course).
- (ii) Short term courses for ladies in home-scale preservation of fruits and vegetables.

(4) Central Building Research Institute, Roorkee.

- (i) Shell structures.
- (ii) Soil Engineering.

(5) *Central Electro-Chemical Research Institute, Karaikudi.*

A refresher course on 'Electro-Plating' for 3 months duration was started from 1957-58. Four candidates in 1958 and five candidates in 1959 from various industries were trained in electroplating at the Institute. It is proposed to start a course on Batteries. Candidates from Industry or Govt. organisations are given preference.

(6) *National Botanic Gardens, Lucknow.*

The Institute gives training in (1) gardening and (2) 'Usar' reclamation.

(7) *Regional Research Laboratory, Hyderabad.*

Training of artisans in the manufacture of high grade hand-made paper is conducted according to a scheme sponsored by the Khadi and Village Industries Commission. Five trainees are taken at a time for a period of three months.

This matter was also considered at a Conference of Directors held at

Mysore in June, 1961. The general feeling among the Directors was that during the last 3-4 years very definite progress had been made and there was increasing realisation of the laboratories' role in the industrial development of the country. They stated that both public and private industries as well as national bodies entrusted with the planning and development of programmes were welcome to visit the laboratories and see for themselves the work carried out therein. As an immediate step towards bringing the developmental work of the laboratories to the notice of the public and industry, it was decided that each laboratory should bring out a bulletin periodically to specially highlight the work done and point out the avenues in which industry can derive expert advice and assistance from the laboratories.

[C.S.I.R. letter No. 17 6 60-PC, dated 21st September, 1961.]

The Committee recommend that a study may be made to evaluate the impact of the publications of the CSIR and the National Laboratories on industry and other interested people. Besides, the CSIR and the National Laboratories should keep in touch with the recipients of their publications and gather their reactions.

The Committee suggest that the CSIR should bring out publications in English as well as regional languages giving scientific information in non-technical simple language which can be understood by a layman.

It is true that so far no systematic study has been made to evaluate the impact of the publications of the CSIR and its Laboratories. This is a difficult task as the impact is not easily measurable; it is also long range in its very nature.

Publications are of various types and all of them are not designed and pin-pointed to industry; some are intended for research workers and users of research information and some are addressed to the lay public. The increasing demand for such publications is a measure of the developing interest in the scientific effort of the laboratories. Most of our publications elicit excellent reviews in the technical press. Many of our laboratories receive periodically letters of appreciation and requests for further information on specific topics from lay-men, industrialists, scientists and technologists. Several learned bodies both in India and abroad, enter into exchange arrangements with us for our publications. These are definite indications of the impact of our publications on different classes of people. In special publications

intended for specific classes of people the inclusion of a suitably prepared questionnaire may help to assess the reaction of the readers.

As regards bringing out publications in English as well as regional languages giving scientific information in non-technical simple language, the recommendation is accepted. As a matter of fact the Governing Body of the Council has taken a decision to this effect. The Council is at present bringing out a number of publications in English and a few publications are also brought out in Hindi. The Central Food Technological Research Institute, Mysore is bringing out a periodical in Kannada. Preparation of scientific information in non-technical simple language can be handled only by specialists trained for such work. As the number of such trained personnel increases, the preparation of such publications in regional languages will go ahead, but in the present circumstances the

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The Committee consider it desirable that all the National Laboratories should publish annual reports giving their activities for the year. The reports should be prepared in such a manner as to stimulate enquiries from industry.

process is bound to be somewhat slow.

[C.S.I.R. letter No. 17/6/60-PC, dated 15th February, 1961.]

Some of the Laboratories under the CSIR are bringing out the annual reports. The recommendation of the Committee has been communicated to the other laboratories and they have been asked to take steps to publish annual reports.

[C.S.I.R. letter No. 17/6/60-PC, dated 13th January, 1961.]

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The Committee recommend that urgent steps should be taken to gear up the machinery of the INSDOC so as to ensure quick and efficient service and to fulfil its avowed objectives.

Recommendation is accepted and necessary action towards its implementation is under consideration.

[C.S.I.R. letter No. 17/6/60-PC, dated 13th January, 1961.]

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The Committee would like to observe that the system of allowing visitors to come and see things for themselves any day as is the case in the National Physical Laboratory is not satisfactory as it is bound to disturb the work of the staff. The Committee consider that it would

The recommendation is accepted. The Directors of the National Laboratories have been asked to take necessary action as suggested by the Estimates Committee.

[C.S.I.R. letter No. 17/6/60-PC, dated 13th January, 1961.]

be better if the National Laboratories hold 'Open days' for a specified number of days in a year when a very large cross-section of the concerned industry and others interested might be invited to visit the Laboratories and discuss matters with them. If, however, any one wishes to see the Laboratories on other days, he might be permitted to do so by the Director by a previous appointment. Such visits should be so arranged as to avoid any disturbance to research work carried on in the Laboratory.

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The Committee suggest that the reasons for the lack of response from the Community Development Organisation in the matter of deputing some of their officers to the National Laboratories/Institutes to receive training under refresher courses may be investigated and remedial measures taken

Effective liaison between the Community Development Organisation and the National Laboratories was wanting for some time. The significance of research results from the Laboratories are not fully realised until practically demonstrated; and there has also been lack of sufficient appreciation of rural problems on the part of the Laboratories.

The C.S.I.R. has decided that such Laboratories as can take up prob-

lems which have a rural bias could have small extension units.

An extension unit has also been set up at the head-quarters of the CSIR to provide liaison with the Community Development Organisation. As a result some processes worked out at (1) Central Leather Research Institute, Madras (2) Central Food Technological Research Institute, Mysore (3) Central Building Research Institute, Roorkee (4) Central Road Research Institute, New Delhi and (5) National Botanic Gardens, Lucknow, which are likely to find use in rural areas, have been selected in consultation with the Community Development Organisation and a few rural centres for pilot trials of some of these processes have also been selected. Once the utilisation of some of the selected techniques proves successful, it will encourage the rural development agencies to adopt them in rural areas. In the nature of things the operation of extension work is of long range character but the situation has considerably changed and cooperation from rural development

agencies both governmental and voluntary, is gradually increasing.

[C.S.I.R. Letter No. 17/6/60-PC, dated 13th January, 1961).

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The Committee recommended that suitable measures should be taken to attract persons for taking up work in the Extension Service of the Central Leather Research Institute.

The recommendation is accepted. The C.L.R.I. has already undertaken a scheme of training in leather technology in collaboration with the Madras University and also training of tanners. With the increase in the number of trained personnel, the personnel difficulty is expected to be overcome in due course of time. The Director of the Institute is fully aware of the position and all necessary measures are being taken by him.

[C.S.I.R. Letter No. 17/6/60-PC, dated 13th January, 1961).

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The Committee consider that the question of introduction of research cells in the industries is of vital importance and should be vigorously pursued. The industries may be given

The recommendation of the Estimates Committee has been brought to the notice of the Ministry of Commerce and Industry for necessary action in the matter.

suitable inducements, if necessary, for introducing research cells in their respective industries.

[C.S.I.R. Letter No. 17/6/60-PC, dated 13th January, 1961).

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The Committee are of the view that there is a need for greater efforts being made than at present to bring home to industry the importance of industrial research for its own advancement no less than that of the country.

DGSIR in his personal contacts with representatives of industrial units and associations, impresses upon them the desirability and advantages of setting up research wings in industrial establishments. In the case of large-scale industry, the Council follows the policy of supporting co-operative research associations formed by industrial groups. The Silk and Art Silk Mills Research Association is being supported by the C.S.I.R. During the last two years a Rubber Manufacturers Research Association and an Indian Paint Manufacturers Research Association, have been formed. Efforts are being made to organise similar research associations for the following industries also:—

- (i) Foundry Industry.
 - (ii) Automobile Industry.
 - (iii) Cement and Concrete Industry.
 - (iv) Tea Industry.
 - (v) Building Industry.
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The Committee are of the opinion that there is considerable scope in India to make industries interested in forming industrial research associations. They, therefore, recommend that active steps should be taken to encourage the formation of Co-operative Research Associations for Foundry, Cement, Mica, Electronics, Small machinery manufacture, footwear and automobile industries.

Further information called for by the Committee.

Please state the progress made in the formation of Co-operative Research Associations for the industries mentioned in para. 102 of the Report and other industries.

(L.S.S. O.M. No. 27-EC-II/60, dated 20th April, 1961).

It is hoped that, in course of time, the contribution of industry to research will be significant.

(C.S.I.R. Letter No. 17/6/60-PC, dated 13th January, 1961).

The recommendation is accepted. The promotion and formation of Co-operative Research Associations for different industrial groups in the country is the accepted policy of the CSIR and the DGSIR is continually making efforts to bring about the establishment of such Associations wherever possible.

(C.S.I.R. Letter No. 17/6/60-PC, dated 13th January, 1961).

The formation of research associations for other industries is receiving the attention of the Director-General, Scientific and Industrial Research continuously. Discussions with the representatives of Cement, Automobile, Tea and Building Industries

have been carried on, and further developments are awaited from the side of the Industry. The Foundry Industrialists at Batala (Punjab) have shown interest in the formation of a research association and the rules and regulations are being formulated by their representatives. A Foundry and Light Engineering Research Association is being formed at Coimbatore, South India. Their draft rules and regulations have been received and are under scrutiny. The Indian Plywood Manufacturers' Research Association has been formed and the Memorandum of Association and the Rules and Regulations of the Research Association have been filed with the Registrar of Societies in Bangalore for registration of the Association under the Societies Registration Act, 1860. The registration is awaited. The Radio and Electronics Research Association have also formulated their Rules and Regulations and these are under scrutiny.

[C.S.I.R. Letter No. 17/6/60-PC, dated 21st September, 1961).

B. 78th Report

S. No. (as in the Appendix XII of the 78th Report.)	Reference to Paragraph No. of the Report	Summary of recommendation/ conclusion	Reply of the Government
1	2	3	4
3	17	The Committee recommend that (i) the Scientific Liaison Officer should be appointed quickly so that the Indian Scientific Liaison Office, London, may function efficiently and (ii) the post of the Senior Scientific Officer may be kept in abeyance.	(i) Dr. A. M. D'Rozario has since been appointed as Indian Scientific Liaison Officer, London. (ii) The recommendation of the Committee has been accepted. [Ministry of SRCA O.M. No. 3(4)/60-SR-III, dated 22/23 September, 1960.]
4	18	The Committee are of the view that the Ministry should in the first instance, see to it that the Indian Scientific Liaison Office, London functions effectively within its existing jurisdiction and then only	The recommendation of the Committee has been accepted. [Ministry of S.R. & C.A. O.M. No. 3(4)/60-SR-III, dated 22/23 September, 1960.]

should the question of extending its jurisdiction to cover other advanced countries in Europe be examined.

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The Committee consider that the increase subsequently made over the original provision for the development of scientific societies and institutes in the first plan was unrealistic and unduly high.

Noted.

[Ministry of S.R. & C.A. O.M. No. 18-(76)/60-SR-II, dated 26th February, 1962].

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The Committee consider that the Scientific societies and institutes have an important role to play in the field of science including scientific research. They accordingly suggest that the Ministry's endeavour should be to build up a vigorous system of research both within and outside Government. With this end in view, the question of affording adequate assistance in suitable cases to existing scientific institutions for enlarging their activities for undertaking new lines of activity and to new institutions with well defined objectives, should be sympathetically examined.

Noted.

[Ministry of S.R. & C.A. O.M. No. 18-(76)/60-SR-II, dated 26th February, 1962].

Further information called for by the Committee.

The steps taken to implement the re-

Grants amounting to Rs. 159.00 lakhs

commendation may please be stated.

(L.S.S. O.M. No. 29-EC.II/60, dated
1st May, 1962).

to private scientific institutions were given during the second plan period for consolidating and enlarging their activities. An allocation of Rs. 290.00 lakhs has been made in the third plan period for similar purpose.

[Ministry of S.R. & C.A. O.M. No. 15-(76)/60-S.R. II, dated 17th/22nd August, 1962].

The question as to what control or supervision Government should exercise in the case of educational Institutions in receipt of grants-in-aid has been dealt with by the Committee in their 24th Report (Second Lok Sabha). While reiterating the observations, the Committee feel that in the case of the grants-in-aid to scientific institutions they should be enabled to function in their own way so long as the grants-in-aid are employed for the purposes they are given. It is only when they do not conform to the conditions of the grants that Government may intervene.

Noted.

[Ministry of S.R. & C.A. O.M. No. 15-(76)/60-SR-II, dated 26th February, 1962].

Further information called for by the Committee.

The steps taken to implement the recommendation may please be stated.

(L.S.S. O.M. No. 29-EC.II/60, dated 1st May, 1962).

The Committee would like to observe that before sanctioning a scheme of an aided institute, all the details should be gone into and there should be no unilateral modification during the course of its implementation. They are of the opinion that it could be desirable to permit some latitude to the major scientific institutes in the matter of implementation of the plan schemes for which finances have already been allocated.

Further information called for by the Committee.

The steps taken to implement the recommendation may please be stated.

(L.S.S. O.M. No. 29-EC.II/60, dated 1st May, 1962).

The private scientific institutions have their own Governing Bodies and Councils. The Government does not interfere with their day-to-day activities.

[Ministry of S.R. & C.A. O.M. No. 15-(76)/60-S.R. II, dated 17th/22nd August, 1962].

Noted.

[Ministry of S.R. & C.A. O.M. No. 15-(76)/60-SR-II, dated 26th February, 1962].

The Government does not interfere with the activities of the Scientific institutions. Once a scheme is sanctioned, the implementation is left to the institution.

[Ministry of S.R. & C.A. O.M. No. 15-(76)/60-S.R. II, dated 17th/22nd August, 1962].

1	2	3	4
10	30	<p>Where a reviewing committee has found the work of an institute satisfactory, the Committee are of the view that there would be advantage in assuring it a fixed annual grant over a period, say of 5 years which would enable it to plan its programme for that period.</p> <p><i>Further information called for by the Committee.</i></p> <p>The steps taken to implement the recommendation may please be stated.</p> <p><i>(L.S.S. O.M. No. 29-EC.II/60, dated 1st May, 1962).</i></p>	<p>Noted.</p> <p><i>[Ministry of S.R. & C.A. O.M. No. 15-(76)/60-SR-II, dated 26th February, 1962].</i></p> <p>Allocation of funds to major scientific institutions have been made for their recurring and non-recurring expenditure during the Third Plan period as a whole. It has been left to them to draw up their programmes within the allocation made by the Government. Provision in the annual budget for giving grants to these scientific institutions is made on the basis of their programmes after discussions with the Directors of the institutes.</p> <p><i>[Ministry of S.R. & C.A. O.M. No. 15-(76)/60-S.R. II, dated 17th/22nd August, 1962].</i></p>

The Committee consider that in the case of major research institutes getting substantial grants-in-aid from the Govt. of India, it would be desirable to have a Committee at regular intervals of 5 years to review their work. The Committee feel that the institutes will welcome such a review periodically.

Further information called for by the Committee.

Further action by Govt. to actually undertake review as suggested by the Committee may please be communicated.

(L.S.S. O.M. No. 29-EC.II/60, dated 1st May, 1962).

The Committee suggest that the request of the Birbal Sahni Institute of Palaeobotany for financial assist-

The major scientific institutes viz. Indian Association for the Cultivation of Science, Birbal Sahni Institute of Palaeobotany, National Institute of Sciences of India and Bose Institute, were consulted and they have agreed to periodic reviews.

[Ministry of S.R. & C.A. O.M. No. 15-(76)/60-SR-II, dated 26th February, 1962].

Reviewing Committees were appointed for the Indian Association for the Cultivation of Science and the Birbal Sahni Institute of Palaeobotany in 1958 and 1959 respectively. Govt. have recently set up a committee to review the work of the Bose Institute. The question of setting up a Committee to review the work of the National Institute of Sciences of India is under consideration of the Government.

[Ministry of S.R. & C.A. O.M. No. 15-(76)/60-S.R. II, dated 17th/22nd August, 1962].

This has been done.

[Ministry of S.R. & C.A. O.M. No. 15-(76)/60-SR-II, dated 26th February, 1962].

ance for a joint expedition with a Japanese Botanist to Bhutan and Sikkim may be sympathetically considered and an early decision taken therein.

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The Committee recommend that the Ministry should endeavour to fill up the post of Director for the Birbal Sahni Institute at an early date as it has remained unfilled for long.

The post of Director, Birbal Sahni Institute of Palaeobotany has since been filled.

[Ministry of S.R. & C.A. O.M. No. 15-(67)/60SR.-II, dated 26th February, 1962].

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The Committee regret the time lag in the commercial exploitation of a process after its development. They recommend that the National Research Development Corporation should take effective steps to reduce this time lag by fostering contacts, both formal and informal, between the scientists and engineers engaged in research and the entrepreneurs in industry who can appreciate the value and potentialities of researches in progress and who are inclined to take advantage of them. For this purpose, it should have on its staff technical personnel who can

The Director General, Scientific and Industrial Research in his capacity as Vice-Chairman of the National Research Development Corporation, keeps the Corporation posted with the information regarding the Council of Scientific and Industrial Research and the National Laboratories and he also keeps the Council posted with the activities of the Corporation. Recently two of the Directors of the National Laboratories have also been nominated on the Board of Directors of the Corporation. The Secretary and other officers of the Corporation also visit the

maintain close relationship with the heads of the research institutions as well as with the top management of the industry in the country.

National Laboratories and meet the Directors frequently and discuss matters with them. The various reports of the Laboratories are also sent to the Corporation for information. In this way, the Corporation and the National Laboratories are associated with the activities of each other. Sufficient notice is also given by the National Laboratories to the Corporation about the development of processes and, as soon as a patent is sealed, a copy is furnished to the Corporation.

Intensive efforts are made to see that the process licensed go into commercial production as quickly as possible.

Besides other technical officers, the Secretary and Industrial Liaison Officer maintain close contacts with Research Institutions and industry. Recently, with a view to foster better contacts with industry, particularly at the top management level, Corporation has decided to become a member of some Chambers of Commerce and Associations of Industry. A first step in this direction is the membership of All India Manufacturers Organisation, Indian Chemical Manufacturers' Association and the Indian Standards

The Corporation should obviously not feel that its task is over with the presentation of a process to the industry. The Committee are of the view that it should persuade the industry to take up production as quickly as possible and play a positive role in helping the industry to overcome delays, procedural and others, in the development and commercial exploitation of a process.

Institution. The Corporation also intends to become a member of the Federation of Indian Chamber of Commerce & Industry., National Productivity Council, etc. At present, besides the Secretary, the Corporation has on its staff one Industrial Liaison Officer. The Executive Director, recently selected for the Corporation, has considerable experience of the Development Wing of the Ministry of Commerce & Industry. More staff can be recruited when required.

[Ministry of S.R. & C.A. O.M. No. 13(29)/59-SRI, dated 6-9-1961].

For quick implementation of projects and early establishment of commercial production, the National Research Development Corporation is already assisting licensee firms in securing land, building materials, power, import licences for capital equipment and raw material etc., by making recommendations to the authorities including Central and State Governments concerned.

The Committee had suggested that the scheme to set up institute for designing and developing tools, precision instruments etc., in various regions under consideration of the Ministry of Commerce & Industry should be finalised early in consultation with the N.R.D.C. and the CSIR.

These authorities have to consider the recommendations in the light of the availability and other commitments. Although there are delays, by and large, these recommendations are accepted. There have hardly been any cases where, whatever may have been the preliminary objections, the required facilities have not ultimately been provided. However, active steps continue to be taken to arrange that bottlenecks are quickly removed and commercial production is established as quickly as possible.

[Ministry of S.R. & C.A. O.M. No. F. 13(29)/59—SRI, dated 18/19th May, 1961].

The Ministry of Commerce & Industry have noted the recommendations of the Estimates Committee and are endeavouring to promote the setting up of the institute for designing machine tools in collaboration with the Government of Czechoslovakia

A Committee consisting of officials of this Ministry, Commerce and Industry, representatives of the Ministry of Scientific Research & Cultural Affairs and private machine tool industry under the Chairmanship of

Prof. M. S. Thacker has been set up in March 1960, for preparing an outline for the establishment of the Institute. This Committee met in April 1960, and discussed the scope of the proposed institute; and put forward its proposals for the consideration of the Czech Government. The views of the Czech Government are awaited.

[Ministry of C&I O.M. No. 12(5)/60 Eng. Pro., dated 11-11-60].

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Further information called for by the Committee.

The latest position in the matter may please be stated.

(L.S.S. O.M. No. 29-EC.II/60, dated the 1st May, 1960).

In accordance with the recommendations of the Thacker Committee which were accepted by Government, it was decided to locate the Institute at Bangalore. A society by the name of "Central Machine Tool Institute" was registered at Bangalore on the 27th March 1962 under the Mysore Societies Registration Act. Skeleton staff to look after the preliminary work connected with the establishment of the Institute are in position. Two

The Committee were surprised to learn from the representative of the Corporation that certain incomplete processes were reported prematurely to Corporation by the National Laboratories. The Committee have also referred to this in para 69 of their Seventy-Sixth Report on the Ministry. They cannot overemphasise the need for a careful scrutiny being exercised before processes

technical experts visited Prague recently to assist the Czech experts in finalising the Project Report for the setting up of the Institute with the help of a gift of Rs. 60 lakhs offered by the Czech Government. An agreement was also signed by Prof. M. S. Thacker, Chairman of the Governing Council of the Institute with M/s. Technoexport of Prague.

Land required for the construction of buildings is under acquisition by the Government of Mysore. Action to procure equipment required is being taken.

[Ministry of Steel and Heavy Industries O.M. No. 19(8)/62-Eng. Pro. dated the 22nd August, 1962].

The recommendation of the Committee refers to the practice in the past when a process was considered as having been referred to the Corporation for development when initial information about it was received. From 1st April 1960, however it has been arranged that a process will be considered for development only when a detailed technical report on the various aspects of the invention

are reported for commercial exploitation.

including (i) its genesis (ii) its novel features, (iii) likely scope of its application, (iv) the stage to which the laboratory investigations have been conducted, (v) the scale and duration of pilot plant working, if any, (vi) reports on consumer acceptability trials, (vii) availability of raw materials, (viii) estimates of cost of production (ix) likely capital expenditure required to put the invention into commercial production, (x) a Flow-sheet and (xi) any other points which the research institutions may like to emphasise, is received. It is hoped that this change in procedure will be helpful in substantially eliminating the reporting of incomplete processes for commercial development to Corporation. If Corporation after scrutiny of the report feels that the process is not ripe for commercial development, it will advise the research institute of the need for further work.

[Ministry of S.R. C.A. OM. No. F. 13(29)/59-SRI, dated 18/19th May, 1961].

It is hardly necessary for the Committee to emphasise the importance of the role that the National Research Development Corporation has to play in the scheme of things. The Committee are appreciative of the efforts that are being made by the Corporation to fulfil its objectives but, judging from the paramount need of the country to forge ahead in industrial expansion and of securing favourable balance of payments in foreign exchange, they cannot feel satisfied with the progress as revealed by the results. With the increasing outlay on research whose overall benefits can be assessed solely in terms of their utilisation in the field, the Committee would like the Corporation to energise its activities for the better fulfilment of its avowed objectives. While suggesting that the Corporation should pursue vigorously the development of all patents and processes, the Committee would like it to pay particular attention to those which may result in the saving of foreign exchange.

The National Research Development Corporation greatly appreciates the points made by the Estimates Committee and is fully alive to their importance. Its aim is to secure the commercial use of maximum number of inventions and all energies are directed towards this end. There is no bar to consider commercial development of commercially feasible processes in the public sector even where private industry is interested. In fact, a number of inventions have been entrusted to the Public Sector for commercial production. The benefits of laying particular stress on development of processes which are likely to result in the saving/earnings of foreign exchange are always kept in view. The programme of work of the National Laboratories which are mainly responsible for the patents and processes which the Corporation is called upon to develop, are drawn by the Executive Councils and the Scientific Advisory Committees of the National Laboratories on which leaders of industry and science in the related fields work as members. The Director General, Scientific and Industrial Research, who is Vice-Chairman of the Corporation, or his representative also at-

Further information called for by the Committee.

Value of goods produced and foreign exchange saved as a result of processes licenced during the years 1959-60, 1960-61 and 1961-62 may please be furnished.

(L.S.S. O.M. No. 29-EC-II/60, dated the 1st May, 1960).

tends the meetings of these Committees. The D.G.S.I.R. keeps the Laboratories informed of the point of view of the Corporation and vice-versa.

[Min. of S.R. & C.A. O.M. No. F. 13(29)/59-SRI, dated the 6th September, 1961.]

The value of goods produced and estimated foreign exchange saved as a result of processes licensed during the years 1959-60, 1960-61 and 1961-62 is as follows:—

Year	Value of goods produced (in lakhs of rupees)	Estimated Foreign Exchange Savings (in lakhs of rupees)
1959-60	19.20	15.46
1960-61	29.00	23.17
1961-62	98.00	78.54

[Min. of S.R. & C.A. O.M. No. F. 13(29)/59-SRI, dated 25-7-1962].

The Committee suggest that the National Research Development Corporation should periodically review the position in regard to its income and expenditure and make efforts to see that it attains self-sufficiency at least by the end of the 3rd Plan period.

The Committee suggest that the question of having a provision for incorporating the directives received from the President in the annual reports of the National Research Development Corporation under Article 127 of the Articles of Association of the Corporation may be examined by the Ministry.

The position regarding income and expenditure of the Corporation is reviewed periodically. It is anticipated that at the end of the Third Five Year Plan, the income of the Corporation from premia and royalties may be of the order of Rs. 10 lakhs per annum. This may be just sufficient to meet administrative expenses and the recurring expenses on developmental projects.

[Ministry of S.R. & C. A. O.M. No. F. 13(29)/59-SRI, dated the 18/19th May, 1961].

A para on "Directive_s received from the President" has been incorporated in the Annual Report of the Corporation for the period ending the 31st March 1960 and in order to make such a requirement mandatory on the Company, necessary action has been taken to amend Article 127 of the Articles of Association of the Corporation so as to provide that any directives issued by the President during any year should be incorporated in the Company's Annual Report pertaining to that year to be placed before Parliament under Section 639 of the Companies Act, 1956.

[Min. of S.R. & C.A. O.M. No. 13(29)/59-SRI, dated 18th/19th May, 1961.]

1	2	3	4
27	73	The Committee recommend that the Ministry should define the borrowing powers of the National Research Development Corporation by placing a suitable limit thereto as in the U.K. This will enable Government to review the working of the Corporation at regular intervals as is done in the U.K. Such a financial review may assume greater importance in the years to come with the expansion of its activities.	It has been decided to restrict the borrowing powers of the Corporation to Rupees one crore, an amount equivalent to the authorised capital of the Corporation. [Ministry of S. R. & C.A. O.M. No. F. 13(29)/59-SRI dated 18th/19th May, 1961].
29	77	The Committee suggest that the Director, Geological Survey of India should be included in the Governing Council of the Indian School of Mines & Applied Geology, Dhanbad.	Government have accepted the recommendation. [Ministry of S.R. & C.A. O.M. No. F. 12-53/60-T.I., dated 4th March, 1961.]
32	81	The Committee find that the present name of the School is not appropriate. It appears to the Committee that the original name which was a simple one, would have served the purpose well as it would obviously not be possible with the increasing field of its activities to include in its name every subject taught in it.	Government have decided to restore the original name viz. "Indian School of Mines". [Ministry of S.R. & C.A. O.M. No. F. 12-53/60-T.I. dated 4th March, 1961.]

They therefore, suggest that the question of suitably changing it may be examined.

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The Committee are of the view that the intimation of expenditure sanction towards the fag end of the financial year and occurrence of huge short-falls year after year in the budget of the Indian School of Mines & Applied Geology depict an unsatisfactory state of affairs calling for immediate remedial measures.

The shortfall of expenditure was due to a variety of reasons and the following steps have been taken to avoid them in future:—

- (i) The Institute has been requested to make a realistic estimate for budget provision keeping in view the past experience about time taken in procuring equipment;
- (ii) To place orders for equipment right in the beginning of financial year and to approach the Government for sanction wherever such sanction is necessary early in the year;
- (iii) To draw up lists of equipment in consultation with the foreign experts wherever necessary so that equipment for which provision has been made in the budget is ordered without delay;
- (iv) To keep the expenditure position constantly in view and to remind Directorate General of Supplies and Disposals and other

1	2	3	4
			<p>authorities to expedite procurement of stores.</p> <p>[Ministry of S.R. & C.A. O.M. No. F. 12-53/60-T.I. dated 4th March, 1961].</p>
34	85	<p>The Committee suggest that the post of Principal in the Indian School of Mines & Applied Geology may be abolished.</p>	<p>The post of Principal has since been abolished.</p> <p>[Ministry of S.R. & C.A. O.M. No. F. 12-53/60-T.I. dated 4th March, 1961.]</p>
85	88	<p>The Committee are of the view that the reorganised Plan of expansion of the Indian School of Mines & Applied Geology should be finalised and implemented without further delay so that the development plans of the institution may make a rapid headway failing which the implementation of the country's programme in the third plan is likely to be affected adversely for want of technical personnel.</p>	<p>The reorganised plan of expansion of the School, included in the Second Five Year Plan, is in the process of implementation; two new courses (i) in Petroleum Technology and (ii) Applied Geo-physics, have been started; the annual admissions have been increased to 150; and the scales of pay for the teaching staff have been revised in the light of the recommendations of the AICTE.</p> <p>A sum of Rs. 68 lakhs has been proposed as provision for development of the School during the Third Five Year Plan.</p> <p>(Ministry of S.R. & C.A. O.M. No. F. 12-53/60-T.I. dated 4th March, 1961.)</p>

Further information called for by the Committee.

Please intimate the latest position regarding the implementation of the reorganised plan of expansion included in the Second Five Year Plan as also the expenditure incurred during the first year of the Third Five Year Plan and the details of activities covered.

(L.S.S. O.M. No. 29-EC-II/60, dated 1st May, 1962).

The progress made so far in the implementation of the plan of expansion of the Indian School of Mines is as follows:—

1. *Buildings*—A temporary hostel accommodating 200 students has been built and certain barracks have also been converted into hostel accommodation for about 40 students. Another hostel (permanent building) to accommodate 200 students is under construction.

126 staff quarters have been built to accommodate 6 professors, 8 lecturers, 56 Class IV staff and 56 others.

Additions have been made to the instructional buildings as also to laboratories costing Rs. 1.2 lakhs and Rs. 1.6 lakhs respectively.

The total expenditure incurred so far on buildings under the expansion scheme is a little over Rs. 20 lakhs.

2. *Equipment*—Including the equipment obtained under the Colombo Plan, the total expenditure incurred under this head for the expan-

sion scheme is Rs. 13 lakhs (approx.). This has enabled the School to equip better Laboratories in the Departments of Mining, Petroleum Technology, Applied Geology and Geophysics.

3. Staff—The scales of pay for teaching staff have been revised in accordance with the recommendations made by the All India Council for Technical Education, namely:

Professor (Sr. scale) — Rs. 1600-100-1800
Professor (Ord. scale) — Rs. 1000-50-1500
plus allowances.

(Rs. 1100-50-1500-60-1600 on the merging of allowances on the recommendations of the Pay Commissions).

Assistant Professor — Rs. 600-1150 plus allowances.

Lecturers — Rs. 350-850 -do-

To cope with the additional teaching and other load, consequent on the introduction of Petroleum Technology and Applied Geophysics courses, as also due to additional intake in the Mining Engineering

and Applied Geology courses, the number of teachers of the rank of Lecturer and above have been increased from 25 to 70. The number of Demonstrators/Instructors have also been increased from 9 to 49.

4. *Scholarships*—The number and the value of the scholarships awarded by the School out of the Central Government funds have been increased. The School now provides scholarships for 25% of its intake at the under-graduate level and the value of the scholarships is Rs. 75 p.m.

5. The total expenditure incurred during the Second Five Year Plan and the First year of the Third Five Year Plan is as follows:—

Buildings

2nd Plan	..	Rs. 18 88 lakhs
1961-62	..	Rs. 1 30 lakhs

Equipment

2nd Plan	..	Rs. 9.66 lakhs }
		Rs. *0.85 lakhs }
1961-62	..	Rs. 2.54 lakh

*As aid under UNESCO programme.

Recurring

1960-61	..	Rs. 11 26 lakhs
(Last year of the Second Five Year Plan)		

(Ministry of S.R. & C.A. O.M. No. F. 12-60/62-T.I., dated 23rd/24th October, 1962).

1	2	3	4
36	89	<p>The Committee recommend that efforts should be made to obtain endowments of chairs and research scholarships in the Indian School of Mines & Applied Geology from the Mining Industry. The Committee trust that the public sector which occupies an important place in this industry will come forward with a generous measure of support to it and set an example for others to follow.</p>	<p>Government accept the recommendation and hope that the expectations of the Estimates Committee will be fulfilled.</p> <p>(Ministry of S.R. & C.A. O.M. No. F. 12-53/60-T.I., dated 4th March, 1961).</p>
37	91	<p>The Committee suggest that centres for the entrance examination of the Indian School of Mines & Applied Geology may be opened in the capitals of the States which do not have such centres.</p>	<p>Government accept the recommendation in principle. The Institute authorities are being asked to open further centres wherever necessary and possible.</p> <p>(Ministry of S.R. & C.A. O.M. No. F. 12-53/60-T.I., dated 4th March, 1961).</p>
38	92	<p>The Committee further suggest that other things being equal, the question of giving some preference to the children of miners both in regard to admission and award of</p>	<p>Government accept the suggestion.</p> <p>(Ministry of S.R. & C.A. O.M. No. F. 12-53/60-T.I. dated 4th March, 1961).</p>

Scholarships in the Indian School of Mines & Applied Geology, may be considered.

(Further information called for by the Committee).

Steps taken to implement the recommendation may please be described.

(LSS O.M. No. 29-EC-II/60, dt. 1-5-62).

Admission

Government have issued orders to the effect that other things being equal, preference for admission will be given to the children of miners on the basis of Entrance Examination. These orders took effect from the 1961-62 session.

Scholarships

Under the Coal Mines Labour Welfare Fund, children of miners who pursue studies at recognised institutions in India in any course of general or technical education are entitled to scholarships of Rs. 50/- p.m. subject to fulfilment of certain conditions laid down for the purpose. Accordingly, children of miners who are admitted to the Indian School of Mines, get Scholarships under the Coal Mines Labour Welfare Fund.

[Min. of S.R. & C.A. O.M. No. F. 12-60/62-T.I., dated the 23/24th October, 1962].

1	2	3	4
39	93	The Committee suggest that the Ministry should take positive steps to encourage research work at the Indian School of Mines & Applied Geology and provide adequate facilities therefor.	Government have accepted the recommendation and have asked the Institute to make proposals for the purpose. (Ministry of S.R. & C.A. O.M. No. F. 12-53/60-T.I. dated 4th March, 1961).
42	96	The Committee suggest that the question of suitably improving the prospects for qualified and experienced personnel in the Indian Institute of Technology may be examined.	The suggestion is welcome. The following measures have been taken to improve the prospects of personnel working at the Institute:— (i) 25% of the posts of Assistant Lecturer have been converted into those of Lecturer. Likewise, 15% of the posts of Lecturer have been converted into those of Assistant Professor. (ii) The cadre of "Assistant Lecturer" in the scale of Rs. 260—500 has been substituted by a cadre "Associate Lecturer" in the scale of Rs. 300—560. (Ministry of S.R. & C.A. O.M. No. F. 12-53/60-T.I. dated 4th March, 1961).

In order to attract students of merit to the post-graduate courses in the Indian Institute of Technology, the Committee suggest that the scholarships may be offered on a larger scale, so that no such students are denied opportunities for higher studies on the mere ground of want of finance. The additional expenditure thereon will be well spent if it results in a greater number of qualified technologists specialising in their subjects for which facilities already exist. This would also ensure that the capacity of the Institute in various courses is fully utilised.

The Committee suggest that greater efforts should be made to secure endowment of chairs or institution of research fellowships in the Indian Institute of Technology as obtains in foreign technical institutions.

The Committee suggest that the wholesome practice, of industrialists going to various institutions to see the work of final year students and

It has been decided that with effect from the Session 1961-62, all the students admitted to the post-graduate courses (Master's degree) will be given scholarships. The value of scholarship will be enhanced to Rs. 250/- per mensem as against Rs. 150 per mensem previously given.

[Min. of S.R. & C.A. O.M. No. F.12-53/60-T.I. dated the 4th March, 1961.]

Efforts have been made in the past and will continue to be made in the future, but the response from industrialists to donate funds for endowment of chairs or institution of research fellowships has not till now been encouraging.

[Min. of S.R. & C.A. O.M. No. F.12-53/60-T.I. dated the 4th March, 1961.]

Government accepts the suggestion.

[Min. of S.R. & C.A. O.M. No. F.12-53/60-T.I. dated the 4th March, 1961.]

making selections according to their requirements as introduced in Kharagpur may be encouraged in respect of other similar institutes in the country.

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The Committee suggest that the results of studies undertaken by the Geophysics Department of the Indian Institute of Technology about the standard methods of locating underground water may be published.

Government accepts the suggestion. The Institute has taken steps to publish the results in its own journal.

[Min. of S.R. & C.A. O.M. No. F.12-53/60-T.I. dated the 4th March, 1961.]

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The Committee suggest that an early start should be made in the setting up of the Central Instruments and Services Laboratory at the Indian Institute of Science as recommended by the Reviewing Committee.

Steps have been initiated for setting up the Central Instruments and Services Laboratory.

[Min. of S.R. & C.A. O.M. No. F.12-53/60-T.I. dated the 4th March, 1961.]

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The Committee suggest that the Ministry should impress upon the Indian Institute of Science the desirability of obtaining the prior concurrence of the Development Wing of the Ministry of Commerce and Industry before obtaining equipment under the gift programme so

The suggestion has been brought to the notice of the Institute for future compliance.

[Min. of S.R. & C.A. O.M. No. F.12-53/60-T.I. dated the 4th March, 1961.]

that the licence may be obtained by the time the equipment is received at the port. The Committee consider that by advanced planning the difficulties in procurement of foreign equipment may be minimised.

C. 83rd Report

Sl. No. (as in the Appendix VII of the 83rd Report)	Reference to Paragraph No. of the Report	Summary of recommendation conclusion	Reply of the Government
I	2	3	4
1	3	The Committee cannot help feeling that the budget estimates in respect of National Laboratories/Institutes mentioned in para 1 were framed in an unrealistic manner. The need for taking suitable steps to avoid wide variations between the sanctioned estimates and the actual expenditure of these National Laboratories/Institutes is indicated.	Attention is invited to reply given to para 46* of the 76th Report of the Estimates Committee. (C.S.I.R. Letter No. 17/6/60-PC dated 24th January, 1961.)
2	4	The Committee are of the view that there is considerable scope for accelerating the pace of industrial application of the results of the researches. As a matter of fact, the most reliable criterion to judge	The recommendation has been brought to the notice of the National Research Development Corporation for necessary action. [C.S.I.R. letter No. 17/6/60-PC, dated 24th January, 1961].

whether various researches in National Laboratories/Institutes have been completed successfully would be to see whether the processes evolved have been commercially exploited or not. This can be achieved not so much by these Institutes as by the NRDC with the cooperation of CSIR, other Central Ministries and the various undertakings both in the public and private sectors. Without such application of the researches at the field level, there would be little justification for all the efforts made and expenses incurred on the institutions.

Further information called for by the Committee.

Steps taken by the National Research Development Corporation of India to implement the recommendation may please be stated.

(L.S.S. O.M. No. 31-EC II/60, dated 21-10-1961).

1. With a view to foster better contacts with industry, National Research Development Corporation has become a member of some associations of industry viz., All India Manufacturers Organisation, Indian Chemical Manufacturers Association and Indian Standards Institution. It also intends to become a member of the Federation of Indian Chambers

*See P. 18 of the Report.

of Commerce & Industry, National Productivity Council, etc.

2. For quick implementation of projects and early establishment of commercial production, the Corporation is already assisting licensee-firms in securing land, building materials, power, import licences for capital equipment and raw materials, etc., by making recommendations to the authorities concerned including the Central and State Governments.
3. Constant efforts are being made to remove bottlenecks and to assist industries to establish commercial production as early as possible.
4. With a view to avoid incomplete processes being reported by the Research Institutes for commercial development, a process is taken for development only when a full technical report on the various aspects of the invention including (i) its genesis, (ii) its novel features, (iii) likely scope of its application, (iv) the stage to which the laboratory

The Committee consider it rather unfortunate that the method of soil stabilisation successfully evolved by the CRRJ should have remained practically unutilised for years together, in spite of the fact that various Government agencies are engaged in the construction of roads all over the country. The Committee suggest that this method may be utilised by the CPWD in the

investigations have been conducted, (v) the scale and duration of pilot plant working, if any, (vi) reports on consumer acceptability trials, (vii) availability of raw materials, (viii) estimates of the cost of production, (ix) likely capital expenditure required to put the invention into commercial production, (x) a flow sheet and (xi) any other points which the research institution may like to specifically emphasise, is received. If after scrutiny of the report, National Research Development Corporation feels that the process is not ripe for commercial development, the research institutes are advised of the need for further work.

[Min. of S.R. & C.A. O.M. No. 13(28) / 59-SR I, dated 7th August, 1962.]

The Planning Commission held a meeting of the representatives of CRRJ, New Delhi and Roads Wing of the Ministry of Transport and Communications on 27th August, 1960 to consider allocation of funds in the Third Plan for large scale experimental trials*in road construction. A decision has been taken that the techniques of construction evolved or sponsored by the Central and

Union Territories in all suitable cases and the States should also be approached for its adoption wherever possible. The Committee recommend that conditions should be created so that development work of new techniques can be carried out freely on a reasonably large scale.

State Road Research Laboratories should be tried under field conditions on a fairly large scale so that their performance and cost can be assessed. Such of the techniques as prove their superiority over conventional ones in terms of costs and durability should then be adopted by all agencies. It has also been decided that each State should be persuaded to devote 1% of its Third Plan allocation for road development schemes on experimental specifications and new techniques, and to cover any possible risks of failure etc. a sum of Rs. 75 lakhs should be set apart as 'Risk Fund'. The Ministry of Transport & Communications are taking further action in the light of the above.

The recommendation has also been referred to the Ministry of Works, Housing & Supply who have advised the Additional Chief Engineers under the Central Public Works Department to explore the feasibility of increased adoption in the construction of roads the soil stabilisation

The Committee regret to observe that no appreciable progress has been made so far in the matter of taking positive steps by the Ministry of Transport to encourage construction of stabilised soil roads specially in the rural areas in view of the low construction and maintenance cost involved.

method evolved by Central Road Research Institute.

(C.S.I.R. Letter No. 17/6/60-PC, dated 24th January, 1961.)

The Ministry of Transport and Communications (Roads Wing) whose views were requested in this connection have informed us as under:—

In April, 1959, the State Governments of Uttar Pradesh, Rajasthan, Madhya Pradesh, Bombay, Bihar and Andhra Pradesh were requested to try as an experimental measure the construction, according to specifications suggested by Central Road Research Institute of stretches of stabilised roads upto a total of 30 miles in length in areas having an annual rainfall of less than 60 inches. These State Governments were informed that the Government of India would be prepared to consider the sanction of a grant-in-aid from the Central Road Fund (Ordinary) Reserve to meet 50% of the initial cost on earth embankments and the crust of stabilised roads including surface treatment upto a maximum length of 30 miles.

2. In January, 1960 the State Governments of West Bengal, Orissa,

Kerala, Bombay, Assam and Tripura Administration were requested to construct as an experimental measure a stretch of 5 miles in their States in an area having an annual rainfall of more than 60 inches according to the specifications recommended by the Central Road Research Institute. The State Governments were also told that the Government of India would be prepared to consider the sanction of a grant-in-aid from the Central Road Fund (Ordinary) Reserve to meet the entire initial cost on embankments and the crust of stabilised soil roads including surface treatment upto a maximum length of 5 miles. They were requested to forward their proposals for the construction of such stretches of roads to the Ministry of Transport.

3. Proposals have so far been received by the Ministry of Transport from State Governments of Uttar Pradesh, Punjab and Assam. These proposals are under examination of

the Ministry of Transport and grants-in-aid will be sanctioned from the Central Road Fund (Ordinary) Reserve in due course. The other State Governments have been reminded to send their proposals.

4. If the experimental projects proposed to be carried out on an extensive scale show satisfactory results, it is expected that the State Governments will of their own accord take steps to encourage the construction of stabilised soil roads specially in the rural areas as recommended by the Estimates Committee. The recent decision of the Planning Commission referred to in reply to para 7 of the 83rd Report of Estimates Committee, to allocate 1% of the provision for road development in the Third Plan for large scale trials and experimental constructions will also give a fillip to the adoption of new techniques evolved as a result of laboratory tests and experiments in the construction of roads in rural areas.

(C.S.J.R. letter No. 17/6/60-PC, dated 24-1-1961.)

1	2	3	4
5	9	<p>The Committee suggest that the decision of the Government of India on the suggestion made by the Panel of Scientists of the Planning Commission regarding the creation of a fund for large scale experimental construction and development work and the setting up of an Assessment Committee to evaluate research results and to administer the fund may be expedited.</p>	<p>As mentioned in reply to para 7 of the 83rd Report, it has been decided at a meeting held in the Planning Commission on 27th August, 1960 that each State should be persuaded to devote 1% of its Third Plan allocation for road development Schemes on experimental specifications and new techniques and to cover any possible risks of failure etc., a sum of Rs. 75 lakhs should be set apart as 'Risk Fund'. Out of this amount, a sum of about Rs. 33 lakhs would be utilised for the purchase of machinery which will be under the control of Central Road Research Institute. The balance of Rs. 42 lakhs will be retained by the Ministry of Transport and Communications to encourage field trials in road construction with the help of a Central Assessment Committee to be formed under the aegis of the Indian Roads Congress.</p> <p>(C.S.I.R. letter No. 17/6/60-PC, dated 24-1-1961.)</p>
6	11	<p>The Committee suggest that the Ministry of Works, Housing and</p>	<p>The Ministry of Works, Housing and Supply have intimated that the con-</p>

Supply should indicate what action they have taken in regard to the proposal to lower water table in Delhi in the light of conclusions furnished by the CRRI.

clusions reached by the Central Road Research Institute on their investigations into the rise of Sub-Soil water table conditions in New Delhi, were examined by the 'Ad-hoc Committee on Sub-Soil water table conditions in New Delhi' appointed by that Ministry. The two conclusions drawn by the Central Road Research Institute indicate that there would be no appreciable subsidence in the unbuilt area and that differential settlement due to lowering of water table to 10 ft. below ground level would be insignificant. After taking these conclusions into account, the Ad-hoc Committee recommended that the hours of pumping may be increased to two shifts of 8 hours each. The Committee also recommended extension of the tube well system to the moderately affected areas and resort to lowering of sub-soil water level by pumping. Estimates for 287 tube wells have already been sanctioned by the Ministry of Works, Housing & Supply and the work is being taken up by that Ministry.

[C.S.I.R. letter No. 17/6/60-PC. dated 24-1-1961].

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The Committee are sorry to observe that no serious effort appears to have been made so far to apply techniques mentioned in para 12 on a large scale in spite of the fact that these techniques are capable of being utilised by the Government agencies in the Centre and the State. The Committee suggest that the question of large scale utilisation of these techniques at least during the Third Plan period should be examined by the Central Government in conjunction with the State Government.

Reference is invited to replies given to paras 7 & 8* of the Report.

[C.S.I.R. letter No. 17/6/60-PC, dated 24-1-1961].

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The Committee suggest that the economics of the setting up of small units for iron and steel production in different parts of the country (taking into consideration the cost of transporting raw material) by the low shaft furnace process should be worked out jointly by the CSIR and the Ministry of Commerce & Industry and if the result is favourable, steps should be taken to set up a few such units to start with during the Third Plan period.

The Low-Shaft Furnace Pilot Plant project of the National Metallurgical Laboratory is working on three shift basis. The objective of this Pilot Plant is to study the amenability of different types of raw materials including non-coking coals for the production of foundry grades of pig iron. In this connection, non-coking coals of Bihar are being investigated. These trials will shortly be followed by smelting trials on Andhra Pradesh's raw materials and

The Committee suggest that the proposal to incorporate the process for production of nickel-free austenitic stainless steel developed at the NML in the projected Alloy, Tool and Special Steels Plant to be set up in the public sector may be expedited as already much time has been lost in planning a Tool and Alloy Steel Project.

subsequently smelting trials will be made with materials of Rajasthan, Punjab and South India particularly Salem magnetite and South Arcot Neyveli lignite. Programmes for these investigations have been worked out by the National Metallurgical Laboratory including the assessment of economics of production and feasibility of establishment of small units in different parts of the country. In the meantime, the Ministry of Steel, Mines & Fuel (Dept. of Iron & Steel) have licensed some units for manufacture of pig iron in low shaft furnaces in various parts of the country.

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[C.S.I.R. letter No. 17/6/60-PC, dated 6-5-1961].

The Ministry of Steel, Mines & Fuel (Dept. of Iron & Steel) have intimated that provision has been made for the manufacture of nickel-free austenitic stainless steel in the Project Report of the alloy steel plant proposed to be set up in the public sector at Durgapur.

[C.S.I.R. letter No. 17/6/60-PC, dated 16-2-1961].

*See pp. 104—107 of the Report.

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The Committee feel that with the development of nickle-free austenitic stainless steel and nickle-free coinage alloys in which nickle is replaced by electrolytic manganese, the potential demand for this metal is assured and suggest that early steps should be taken to develop the process industrially.

The process for the production of Electrolytic Manganese Metal has been offered for exploitation to M/s. Devidayal. The matter is being pursued by the National Research Development Corporation. There is also proposal for the exploitation of this process in the Public Sector.

[C.S.I.R. letter No. 17/6/60-PC, dated 24-1-1961].

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The Committee suggest that the question of manufacture of high tensile steel may be pursued vigorously by Government.

The Estimates of the annual demand for pre-stressed concrete high tensile steel wire, as available from the "Wire Panel" Report are 10,000 tons by 1961 and 30,000 tons by 1965-66 respectively. A number of units mentioned below, have been licensed/sanctioned by the Ministry of Steel, Mines and Fuel (Dept. of Iron & Steel) specifically for the manufacture of high tensile wire in the private sector, and it is expected that these units will be capable of producing the required quantity of wire when they all go into full production:—

Annual
capacity
(in tons) on
two shifts
working

1. Messrs. Aluminium Industries,
Kundara, Distt. Quilon, Kerala 4,000
2. Messrs. Shri Baghubhai Moti-
bhai Patel, M/s. Hindustan
Kokoku Wire, Ltd. Delhi ... 6,000
3. Messrs. Specials Steels (P) Ltd.,
Bombay 10,000
4. Messrs. Prestressed Concrete
Co. (S. India) Ltd., Madras 1,000
5. Messrs. Globe-wire Wire In-
dustries, Hyderabad ... 2,000
6. Messrs. Hindustan Steel Pro-
ducts Ltd., Hyderabad. ... 2,000
7. Messrs. Kasabone Wire Co.,
Bombay 2,100
8. Messrs. Shri Harsavadan J.
Shah, Baroda or Surat ... 10,000
9. Messrs. Hindustan Rolling &
Wire Private Ltd., Delhi ... 3,000

39,000

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The Committee strongly urge that a higher priority should be accorded to the indigenous production of refractories to meet all the requirements within the country.

Assistance for carrying out any technical investigations that may be required can be provided by the National Metallurgical Laboratory.

[C.S.J.R. letter No. 17/6/60-PC, dated 28-3-1961].

There are two aspects of the recommendation: (a) as far as stepping up of the indigenous production is concerned, the recommendation has been brought to the notice of the Ministry of Commerce & Industry who, it is understood, are alive to the problem and are taking necessary steps for expansion of the capacity, and (b) with regard to the development of refractories and improvements in production, research work is in progress in the National Metallurgical Laboratory and the Central Glass & Ceramic Research Institute and the commercial development of improved techniques and processes is entrusted to the National Research Development Corporation for arranging commercial exploitation of such

processes.

[C.S.I.R. letter No. 17/6/60-PC dated 24-1-1961].

The Ministry of Commerce & Industry have furnished the following information in regard to indigenous production of refractories:—

"It is recognised that refractories are vital for the construction and maintenance of Steel Plants, Cement Industry, Glass Industry, etc. Hence a very high priority is being given to the development of Refractory Industry, and the item is included in the Draft Outline of the Third Five Year Plan for a target capacity of 2 million tons commensurate with an annual production of 1.6 million tons. In view of its importance, this item was placed on free licensing list in order to attract the entrepreneurs' interest for setting up additional capacity in this field. A Press Note was also issued in March, 1960, inviting more applications for the setting up of more refractory plants near Steel Plants, to manufacture special types of refractories.

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2. The Main types of refractories are as follows:

- (i) Fireclay refractories.
- (ii) Basic refractories.
- (iii) Silica refractories.
- (iv) High Alumina refractories.
- (v) Insulating refractories.
- (vi) Refractory mortars.
- (vii) Deadburnt Magnesite.

3. This industry has the advantage that all the raw materials are available in the country.

4. The installed capacity stood at 4.4 lakh tons at the beginning of the Second Five Year Plan and during the Second Plan the capacity increased by 3.66 lakh tons with a corresponding increase in production 2.44 lakh tons. The present capacity and production item-wise are as follows:

<i>Item</i>	<i>Capacity Tons</i>	<i>Production (1960) Tons</i>
Fireclay refractories	5,30,200	3,71,800
Silica	70,000	57,850

Basic ..	44,000	20,430
High Alumina ..	10,000	7,800
Insulating ..	6,400	1,370
Deadburnt Magnesite	64,320	37,100
Firecement & Mortars •	85,000	49,750
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	8,10,720	5,46,100

5. In line with the Third Plan target schemes have been approved for a further capacity as given below:

<i>Item</i>	<i>Additional Capacity</i>
Fire Bricks	9,66,620 tons
Silica refractories	3,03,000 tons
Basic ..	2,65,000 tons
High Alumina ..	52,888 tons
Insulating ..	21,490 tons
Deadburnt Magnesite	60,000 tons
Fire Cement & Mortars	48,500 tons
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	17,17,498 tons

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This will show that after materialisation of these schemes, the installed capacity of the industry is likely to increase by about 9,00,000 tons. Schemes have also been approved

for taking up the manufacture of new items such as Mica Insulating Bricks, High Grade Laddle Bricks, Chemically Bonded Bricks and Steel Clad refractories etc. The mica insulating bricks are already in production while the other types will be ready for production by the end of 1965. Taking into account the fact the Steel Plant refractories involved special technique, foreign collaboration with countries such as U.K. U.S.A. and Czechoslovakia has been approved.

[C.S.I.R. Letter No. 17/3 (12)/60-PC, dated the 27th May, 1961].

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The Committee suggest that vigorous steps should be taken for the commercial exploitation of the process developed at the NML for the production of high purity electrolytic manganese dioxide suitable for use in dry cells.

The process for the production of Electrolytic Manganese Dioxide has been offered by National Research Development Corporation for exploitation to M/s. Devidayal and the matter is being pursued by the National Research Development Corporation.

[C.S.I.R. letter No. 17/6/60-PC, dated 24-1-1961].

The Committee suggest that the reasons for the reluctance on the part of the industry to adopt the new saggars, the production techniques of which have been developed at the C.G.C.R.I., may be investigated and early steps taken to induce the industry to use the new saggars.

The Regional Liaison Officer of the Council of Scientific & Industrial Research stationed at Calcutta had taken up the problem of production of better class saggars with the pottery industry as early as August, 1957. Copies of reprints of the Institute's article on Saggars were distributed to interested parties but for reasons not made known to us the Pottery manufacturers appeared to be reluctant to adopt the method evolved by the Institute. Recently the matter was again taken up with the Pottery Industry and a circular was issued to 52 pottery manufacturers. In response, 12 parties have shown interest and they have been referred to the Institute for further guidance. Replies to the circular letter are still being received and it is hoped that further response will be forthcoming.

[C.S.I.R. letter No. 17/6/60-PC, dated 6-5-1961].

The Committee suggest that the progress on the programme of mineral development which has been rather slow may be speeded up.

The Central Glass & Ceramic Research Institute has from the very beginning made all possible efforts to implement the mineral development programme. From the very start the Institute undertook systematic

studies on clays available in different parts of the country in collaboration with the Geological Survey of India and the Indian Bureau of Mines and about 1000 clay samples were examined. The results obtained in course of the work have already been published in two parts entitled, Indian Clays, Parts I and II in which data on the samples examined have been incorporated. With a view to finding out the possibility of improving indigenous china clay, which is an essential raw material for ceramic as well as paper, rubber and textile industry, the Institute undertook work of processing of several Indian China clays and it was found that if suitable washing plants were installed, improved quality of the material could be had to suit the requirements. A Symposium on china clay was held at the Institute on May 29, 1955 in which the representatives of the producers, consumers and also scientists and technologists took part. The work

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The Committee suggest that the information service in the C.G.C.R.I. should be established expeditiously.

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The Committee are of the view that special efforts should be made for the manufacture of products mentioned in para 37 on a commercial scale.

that was being carried out at the Institute to improve the quality of china clay was brought to the notice of the industry and the consumers

In order to intensify the work during the Third Five Year Plan the Institute at the instance of the Ministry of Steel, Mines & Fuel, has already submitted to the Geological Survey of India the list of items of the different types of minerals with the request to collect the samples for investigation at the Institute on a priority basis.

[C.S.I.R. letter No. 17/6/60-PC, dated 6-5-1961].

Necessary provision for a scheme on 'Information and Library Service' at Central Glass & Ceramic Research Institute has been made in the Third Five Year Plan and further action will be taken when the Plan allocation is finalised.

[C.S.I.R. letter No. 17/6/60-PC, dated 24-1-1961].

The process on zeo-karbs for water softening has already been licensed to Messrs. Bird & Co. As regards other processes, the Executive Council of the Central Fuel Re-

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The Committee suggest that the decision on the proposal to set up a Tapioca Macaroni plant in Kerala may be expedited.

search Institute, Jealgora decided at its meeting held on 13th February, 1961 that the technical know-how may be provided by the Institute to industries interested. Necessary action to establish contact with the interested parties is being taken.

[C.S.I.R. letter No. 17/6/60-PC, dated 28-3-1961].

The proposals of the Ministry of Food & Agriculture (Dept. of Food) for the Third Five Year Plan include development of a plant of 20 tons per day capacity in Kerala for the manufacture of tapioca macaroni.

[C.S.I.R. letter No. 17/6/60-PC, dated 28-3-1961].

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The Committee suggest that the decision on the proposal to set up a plant for the manufacture of Multi-purpose Food in Madras may be expedited.

A plant for the production of Multi-purpose Food has already been set up in Coimbatore (Madras State) and is functioning. The present capacity is 2 tons per day and plans are under way to step up the pro-

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The Committee suggest that early steps should be taken to secure the application of the new parboiling technique developed at the CFTRI throughout the country.

duction to meet the increasing demand of the Madras State. The Government of Madras have agreed to take the active production of the unit in connection with their mid-day school feeding programme.

The UNICEF have in cooperation with the Ministry of Food & Agriculture decided to put up 2 ten-ton plants for the production of edible quality peanut flour. One of these will be located in Coimbatore and the other in Bombay.

[C.S.I.R. letter No. 17/6/60-PC, dated 6-5-1961].

The Central Food Technological Research Institute has set up model parboiling units in Mysore and Madras States. The Ministry of Food & Agriculture (Dept. of Food) has included in its programme for the 3rd Five Year Plan setting up of demonstration units of the improved methods in the rice producing areas of the country and popularisation of the new techniques. Provision has also been made for loans grants and other incentives to the industry.

[C.S.I.R. letter No. 17/6/60-PC, dated 6-5-1961].

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The Committee suggest that vigorous steps should be taken to enthuse the manufacturers of salt to take up production of by-products of salt.

At the instance of Hindustan Salt Co., a demonstration pilot plant for the production of potassium chloride by one of the processes developed at the CSRI, Bhavnagar will be put up at Kharaghoda.

A project report is also being prepared by the Institute at the instance of the State Trading Corporation, Delhi for the setting up of a commercial plant at Tuticorin for the production of potassium chloride and other useful products from bitterns by the process worked out at the Institute. The CSRI will be helping in the designing and setting up of the plant, the initial running of it, and the training of the personnel to be appointed by the State Trading Corporation for the purpose.

A meeting of the Salt Manufacturers' was convened in November 1960 at the instance of the Chief Secretary to the Government of

Gujarat at which the following decisions were taken:—

- (1) The Salt Manufacturers' Association should decide about the location of a pilot plant for the semi-commercial production of potassium chloride.
 - (2) The Central Salt Research Institute should finalise all plans and estimates and be in a position to put up a unit at the site selected by about October, 1961.
 - (3) The Council of Scientific and Industrial Research would be in a position to finance one of the pilot plants, provided the industry gives certain facilities in the factory or locality selected for the installation of the pilot plant including the supply of raw materials and providing labour.
 - (4) A scheme should be evolved by the Council of Scientific & Industrial Research for extension service (a) to bring to the Salt Manufacturers the results of investigations carried out (b) to arrange demonstration of processes and (c) to acquaint salt manufacturers with the re-
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searches in progress for their possible applications and implications.

- (5) A quarterly report should be prepared by the Central Salt Research Institute for circulation amongst the Salt Manufacturers Associations and Chambers of Commerce.

The Salt Commissioner, Government of India has also been requested to take necessary action in the matter.

[C.S.I.R. letter No. 17/6/60-PC, dated 24-1-1961.]

Further information called for by the Committee.

The latest position in the matter may please be stated.

[L.S.S. O.M. No. 31-EC. II/60 dated 31-10-1961].

The specific steps taken by the Central Salt and Marine Chemicals Research Institute, Bhavnagar, towards acceleration of production of by-products of salt by Industry are indicated below:—

- (i) The plan and detailed estimates of the buildings and machinery for the semi-commercial Pilot Plant for production

of "Potassium Chloride" by the Salt Manufacturers Association at the site of the United Salt Works and Industries Ltd., Kandla, have been worked out by the Institute and forwarded to the firm. It is expected that erection of the Plant will be started in the near future.

(ii) A project report giving the details of the plant and machineries required for the commercial scale production of potassium chloride to be set up under the aegis of the State Trading Corporation at Tuticorin have been worked out and furnished to the State Trading Corporation of India. The complete technical know-how for this plant will be given by the Institute.

(iii) A composite scheme for the recovery of magnesium carbonate, potassium chloride and sodium sulphate from sea bitterns is under preparation. It has been decided to supply the report to M/s. Vallia Brothers, Bombay as technical aid to in-

dustry on payment of a fee of Rs. 10,000 on a regional basis for Bombay region for the first five years.

(iv) The process for the manufacture of Table Salt and Dairy Salt has been released to the following firms for exploitation:—

(1) Hindustan Salt Company, Sambher.

(2) Belapur Salt Works, Belapur, Thana.

(3) United Salt Works and Industries Ltd., Kandla.

The first firm has already started production, the second one is about to do so and the third is collecting the machinery required for the unit.

(v) The Institute has been making continuous and vigorous efforts to interest the salt manufacturers, their associations and

In the context of the persistent shortage of food in the country, the Committee would like that a com-

Chambers of Commerce and individual industrialists in the by-products of salt industry. They were supplied with technical information by way of circulars, reports, demonstrations and conferences etc. Meetings were arranged by the Institute at Uran, Ahmedabad, Madras, Tuticorin and Kandla with salt manufacturers of these regions to acquaint them with the work carried out at the Institute and about the processes developed for the recovery of by-products from sea bitters with special reference to the recovery of potassium chloride.

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The Institute is also taking steps to arrange such meetings in other regions to acquaint the salt manufacturers of those areas with the processes developed by the Institute for the recovery of by-products of salt. [C.S.I.R. Letter No. 17/6/60-P.C. II, dated 17-2-1961].

The Ministry of Food and Agriculture (Deptt. of Agriculture) have informed that a programme for re-

prehensive plan is drawn up for reclaiming alkaline land all over the country without loss of time.

The Committee desire to state that once the researches have proved successful, it should not be the business of the research institute to take up their large scale application. The actual reclamation of Usar lands based on these researches should be the responsibility of the land owners or any other organisation created for the purpose.

clamation of saline and alkaline lands has been drawn up. The programme envisages reclamation of about 4.29 lakh acres in the States of Andhra Pradesh, Gujarat, Maharashtra, Madhya Pradesh, Madras, Mysore, Orissa, Punjab, Rajasthan, Uttar Pradesh, West Bengal, Andaman and Nicobar Islands and Delhi. This includes coastal saline lands also. The various State Governments concerned have also proposed specific provisions in the Third Five Year Plan under soil conservation for the soil reclamation of saline and alkaline soils and specific targets have been recommended. It has also been decided to set up Pilot demonstration projects for the reclamation of alkaline lands in the States of Uttar Pradesh, Bihar and Punjab under the technical guidance of National Botanic Gardens, Lucknow. Based on these demonstrations the State Governments carry out large scale reclamations.

[C.S.I.R. letter No. 17/6/60-PC, dated 24-1-1961].

The Committee are glad that training facilities have been provided to the lower staff in the National Botanic Gardens in the different aspects of work. They suggest that similar activities should be encouraged in the other institutions of the CSIR.

Kindly refer to the reply given to para 36* of the 78th Report.

[C.S.I.R. letter No. 17/6/60-PC dated 24-1-1961].

The Committee are of the opinion that training at the N.B.G. should not be confined to the lower courses only but should also include some higher courses for the training of botanists and horticulturists which is stated to be one of its functions.

The question of instituting higher courses of study for training at the National Botanic Gardens, Lucknow is under examination. While the laboratory can give training in Horticultural practices, the same cannot be said in regard to training in botanical research as the latter subject is of very wide scope. Botanical training can therefore be given only in those fields where the laboratory may have qualified personnel.

[C.S.I.R. letter No. 17/6/60-PC, dated 28-3-1962].

[Further information called for by the Committee].

The result of the examination of the question of instituting higher courses of study for trainees at the Na-

A scheme for training of botanists and horticulturists at the National Botanic Gardens, Lucknow, as recom-

* See page 10 of the Report.

ational Botanic Garden, Lucknow
may please be intimated.

[L.F.S. O.M. No. 31-EC, II/60, dated
21-10-1961].

mended by the Estimates Committee
is under consideration of the Coun-
cil of Scientific and Industrial Re-
search.

[C.S.I.R. letter No. 17-6-60-PC II,
dated 17-2-1962].

The scheme for training of fresh gra-
duates in Botany and Horticulture
for a period of two years in the
Practical aspects of the following
subjects at the National Botanic
Gardens, Lucknow, has been ap-
proved by the Council of Scienti-
fic & Industrial Research:

- (i) Principles of applied botany.
- (ii) Soils and soil management.
- (iii) Irrigation and drainage.
- (iv) Use of garden implements.
- (v) Layout of gardens.
- (vi) Design and maintenance of
plant houses.
- (vii) Garden decorations.
- (viii) Pest and diseases of plants
and their control.

The Committee find that though the experiments leading to the research results mentioned in para 70 were completed three to four years ago, little progress has been made in their commercial exploitation in the absence of pilot plant facilities at the CDRI and to some extent due to lack of clinical facilities. They consider that there had not been proper appreciation of the need for translating research results into practical utilisation.

- (ix) Plant propagation.
- (x) Manure and their uses.
- (xi) Methods of plant improvement.
- (xii) Profitable management of small holdings by cultivation of economic plants.

Necessary action for starting the training course is being taken by the National Botanic Gardens, Lucknow.

[C.S.I.R. letter No. 17/8-(28)/60-PC, dated 10-7-1962].

It is true that lack of pilot plant and clinical facilities at the Central Drug Research Institute, Lucknow, have hampered speedy practical utilisation of the research results of the Institute. Steps have, however, already been taken to remove these lacunae. The Governing Body of the Council of Scientific and Industrial Research has sanctioned the setting up of clinical centres at (1) M.G.M. and Associated Hospitals, Lucknow, (2) Medical College Hospital, Jaipur, (3) K.E.M. Hospital, Bombay, (4) Kanpur Medical College Hospital, Kanpur. (5) Govt.

General Hospital, Madras and (6) Infectious Diseases Hospital, Calcutta. The Director has been asked to take expeditious action for the establishment of the centres at the above hospitals. A provision for the establishment of a 100 bed hospital attached to the C.D.R.I., Lucknow has also been made in the Third Five Year Plan proposal of the C.S.I.R. A pilot plant building for C.D.R.I. is also under construction and is expected to be completed by the middle of 1961. Two firms M/s. Mehta Bros. of Amritsar and M/s. Dyer Meakin Breweries Ltd., Lucknow have offered to take out licences for development of process on 'Preparation of Lanata Glycosides' and "Palatable Yeast Hydrolysate from Distillery Sludge", respectively.

[C.S.I.R. letter No. 17/6/60-PC dated 24-1-1961].

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The Committee suggest that the CDRI should maintain close contact with

The recommendation is accepted in principle. At present, there is only

the researches carried on according to Ayurveda and Unani systems.

one research institute where research in an organised basis is carried out in indigenous system of medicine. This is the Central Institute for Research in Indigenous System of Medicine, Jamnagar. There is close contact between the Central Drug Research Institute and this Institute. The Director, Central Drug Research Institute, is a member on the Advisory Committee of the Jamnagar Institute and there is exchange of reports and information between the two Institutes. Research work on indigenous drugs has been given due recognition in the programme of the Central Drug Research Institute. While it is comparatively easy for modern scientific techniques to be applied in the case of single indigenous drugs, it is not equally easy in the case of compounded indigenous drugs. However, subject to exigencies certain amount of work is being undertaken as for example the investigations on 'Makaradhwaja.'

[C.S.I.R. letter No. 17/6/60-PC dated 24-1-1961].

The development and standardisation of a drug is a complicated process which takes considerable time. A

The Committee suggest that the CDRI may bring out a small brochure giving in a complete and

simple form a description of properties and uses of each of the indigenous drugs produced and standardised by the Institute and the extent to which they can be substituted for foreign drugs.

drug must not only be efficacious but completely non-toxic. Commercially, it must be economical. It has, therefore, to satisfy stringent scientific, economic and medical specifications. Further, it should be an improvement on existing drugs or should be a substitute, in the case of India, for imported ones. Of all the criteria those of efficacy and non-toxicity are not easy to fulfil. It requires extensive invivo studies and then statistical and clinical investigations over a long period of time.

Investigation on drug in the Central Drug Research Institute is carried out from all these angles. The Institute has published many papers in scientific journals giving the properties and use of indigenous drugs and also published the Indian Pharmaceutical Codex.

The recommendation of the Estimates Committee is accepted in principle and as and when full scientific, technical and clinical data are

The Committee are of the view that in order to popularise indigenous drugs among medical men and women, properties and uses thereof should be taught in medical colleges.

[Further information called for by the Committee].

Steps taken by the Ministry of Health, State Governments and Universities for implementation of the recommendation may please be stated.

[C.S.I.R. letter No. 17/8(34)/60-PC, dated 16-5-1962].

The Committee trust that the new technique of doubly-curved shell roof developed at the CBRI which leads to economy in time as well as in material at present in great

available on individual drugs, brochures giving the information would be published by the Central Drug Research Institute.

[C.S.I.R. letter No. 17/8/60-PC dated 24-1-1961].

The recommendation of the Estimates Committee has been brought to the notice of the Ministry of Health, Government of India, various State Governments and Vice-Chancellors of Universities requesting them to take necessary action in the matter.

[C.S.I.R. letter No. 17/8/60-PC, dated 24-1-1961].

The Medical Council of India have intimated that the matter is outside their purview. However, they have stated that the study of drugs of Indian Pharmacopoea is being included in the revised Under-graduate Curriculum.

[C.S.I.R. letter No. 17/8(34)/60-PC, dated 16-5-1962].

The C.B.R.I. is willing to assist any party interested in exploiting the techniques. It has already rendered assistance to several parties, as indicated below:—

shortage in the country would be increasingly adopted in housing and other projects.

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The Committee trust that the shell type structures for the roofing of grain godowns etc. will be adopted increasingly in construction work of public and private sector.

(1) About 1400 houses for officers and men using 30,000 precast doubly curved shells of the C.B.R.I. design have been constructed by the Army at their operation "Amar" Defence housing project at Ambala.

(2) Barracks of 7 units of servants quarters have been constructed with the assistance of the CBRI at Doon School, Dehra Dun.

(3) The High-way research Station of the Government of Madras at Guindy has constructed a Workshop Building using these roofing units.

(4) Type-designs have been provided for use in the slum-clearance project undertaken by the Municipal Corporation, Kanpur.

(5) Roof and floor designs using precast CBRI doubly curved shells have been furnished to the Loyla Industrial School at Patna, Bihar.

(6) Type-designs have been provided to the Locomotive Components Factory at Varanasi for their type II quarters.

(7) Roof designs have been supplied for Type I quarters to be built by the Central Railways at Bhusawal.

(8) Information on this type of construction has been provided to the project authorities at the proposed heavy foundry project at Ranchi and the Oil Refinery to be built at Barauni.

(9) Shell type Grain godowns are being constructed by C.P.W.D. in three places viz. Delhi, Calcutta and Bombay. Shell type structures are also expected to be used for the construction of godowns planned to be built at West Patel Nagar, New Delhi and Borivili near Bombay.

A book on the Design and Construction of Shell Structures incorporating the lectures delivered by Prof. G. S. Ramaswamy, Deputy Director, CBRI along with Dr. Carbone, Consulting Engineer, Calcutta to train CPWD Engineers in the new technique has recently been published by the National Buildings Organisation.

(C.S.J.R. letter No. 17/6/60-PC, dated 16-2-1961).

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The Committee recommend that the process of preparing non-erodable mud plaster developed by the CBRI which would greatly improve village housing should be given wide publicity in the different regional languages particularly among the Community Development Blocks.

After trials sponsored by the National Buildings Organisation had been carried out by the Central Building Research Institute, the National Building Organisation has taken the following steps to publicise the process:—

- (1) The organisation has published a complete report on the investigation and circulated it to building research institutes, important construction departments, Rural Housing Department etc.
- (2) Popular folders on water-proof mud plaster giving practical method of preparation and application of the plaster have been published in Hindi as well as in English and circulated. Copies have also been sent to the Ministry of Community Development for distribution in Development Blocks.
- (3) Articles in Hindi and English on water-proof mud plaster have also

been contributed and published in the GRAM SEWAK 1969 issue and KURUKSHETRA September, 1969 issue. These periodicals have circulation in rural areas.

(4) An article on the subject giving technical details was contributed and published in the Annual Number of the 'Indian Builder'—December 1958 issue.

(5) An article on the subject has also been contributed and published in 1960 issue of C.I.B. Bulletin, issued from the Netherlands for international circulation.

(6) The State Governments and the Ministry of Information and Broadcasting have been approached by the N.B.O. for translation and publication of the leaflets in different regional languages.

The Central Building Research institute has also distributed free of cost a popular note in Hindi on this process. This is one of the processes included in the extension work of the C.B.R.I. Many other organisations namely, the

The Committee suggest that wide publicity should be given to brick and block making machine, developed at the CBRI, throughout the country.

Indian Co-operative Union, Kasurba Seva Mandir, Sewa-Gram (Wardha), National Dairy Research Institute, Karnal; Planning Research and Action Institute, Lucknow; Ashoka Nursery in Mehrauli Block etc. have shown interest in this process. Some individual farmers who evinced interest have also been rendered assistance in constructing small irrigation channels on their lands.

[C.S.I.R. letter No. 17/6/60-PC, dated 16th February, 1961].

The brick and block making machine was exhibited at Industries Fair 1956, India 1958 and the World Agriculture Fair 1959 held at Delhi and there were a large number of enquiries regarding the machine. Publicity is also being given through the Extension Service Unit of the Council of Scientific and Industrial Research.

The following firms have already started commercial production of

The Estimates Committee suggested that in view of the development of a suitable foaming agent from indigenous raw materials by the C.B.R.I. the question of restricting the import of foreign foaming agent for making thermal insulation be examined by the Ministry of Commerce and Industry.

The Committee suggest that large scale trials of the process developed by the CBRI for making

the machine:

1. M/s. Prem Enamel Metal Factory, New Delhi.
2. M/s. Supercrafts (Pvt.) Ltd., Calcutta.
4. M/s. J. K. Iron and Steel and Co. Ltd., Kanpur.

[C.S.I.R. letter No. 17/6/60-PC, dated the 24th January, 1961.]

The matter has been examined and the Ministry of Commerce and Industry agree with the Estimates Committee that the import of foaming agent should be restricted. The applicants coming for the import of foaming agent shall be advised to obtain their requirements in this respect from the Hindustan Housing Factory, New Delhi Office of C.C.I & E. have also been advised suitably in this regard.

[Ministry of Commerce and Industry O.M. No. L.E. I(B)-1(4)/62 dated 28th July, 1962.]

The Central Building Research Institute, Roorkee is conducting large scale trials of the processes deve-

bricks from black cotton soil which are under way in Bhopal and Indore may be undertaken in other areas also.

Further information called for by the Committee.

The latest position in the matter may please be stated.

(L.S.S. O.M. No. 31-ECII/60, dated 21-10-1961).

loped at the Institute for brick making from black cotton soil at Indore. Similar trials are planned to be carried out as far as possible in other areas also, on completion of the work at Indore.

[C.S.I.R. letter No. 17/6/60-PC dated 24th January, 1961.]

The large scale trials of brick making with black cotton soil at Indore are continuing in collaboration with the Housing Division of the Madhya Pradesh Government. Large scale experiments at other places will be taken up after the present project at Indore has been concluded.

[C.S.I.R. letter No. 17/6/60-PCII, dated 17th February, 1962.]

The Committee would like to stress the need for closer collaboration and co-ordination among the various institutes engaged in building research and suggest that suitable steps may be taken towards that end.

The recommendation is accepted. The Central Building Research Institute has taken steps to intensify collaboration and co-ordination on the following lines:—

(a) Exchanging information pertaining to building research

and industry with international agencies like CIB, RILEM, Regional Housing Centres in the Far East, Building Research Institutes in U.K. Canada, Africa, Australia, etc. and receiving in return literature from almost all the important centres of Building Research in the world.

- (b) Maintaining close collaboration with the National Buildings Organization.
- (c) Organising Building Research workers Conferences (in the last 3 years two Conferences were held and it is also proposed to hold the next conference in 1961). Research workers, representatives of building trade, and Engineers from Government Departments participate in these Conferences and discuss problems of mutual interest.

[C.S.I.R. letter No. 17/6/60-PC, dated 24th January, 1961.]

The position of various processes referred to in para 88 with regard to their commercial exploitation is as

The Committee cannot overstress the need for commercial exploitation of

the processes mentioned in para 88 and suggest that the question of undertaking them in public sector, if the private sector does not show satisfactory response, may be considered by Government.

follows:—

- (i) Vitamin 'C': The process of vitamin 'C' developed at N.C.L. has been entrusted to a public sector undertaking, Messrs. Hindustan Antibiotics, Pimpri for production.
- (ii) Porous Rigid filters: There has been some difficulty about the patent as its use involved infringement of an Indian Patent given earlier to a German Firm in 1952. However, the Associated Tubewells, Delhi are interested and their offer is awaited.
- (iii) Water Dispersible DDT as an Oil-bound paste: The N.R.D.C. has decided to licence the process to all interested parties on payment of a royalty of 2½ per cent on net ex-factory sales. Licence agreements with the following firms are under execution:—
 - (1) Messrs Kirti Chemicals Works, Bombay-60.
 - (2) Messrs Khaitan Sons & Co., Calcutta.

(3) Messrs B. J. Lutharia &
Co., Bombay-2.

(4) Messrs Fairmarks (Private)
Ltd., Jullundur City.

(iv), (v) & (vi): *Nim Bitterns, Refined Nim Oil and Denaturants for alcohol from Nim Oil*: The National Chemical Laboratory is now finalising the Technical Report on these items and it will be sent to the National Research Development Corporation to enable it to take further action towards exploitation of these processes.

(vii) *Kamla seed Oil*: A Pilot Plant equipment for washing and cleaning the seed has been fabricated at the Regional Research Laboratory, Hyderabad. The solvent extraction unit is being overhauled and the oil extraction work will be undertaken very shortly. The data obtained will give an approximate cost for the extraction of the oil. Samples of the oil will also be supplied to the interested parties in India and abroad. The work cannot progress quickly as Kamla seeds are not easily available. Kamla trees are mainly found in U.P. and Bihar only. The Regional Research Laboratory, Hyderabad had approached the Chief Conservators

of Forests of these States in December, 1959 for the supply of two tons of seed but only 3/4 ton was supplied and that too was not of the required quality. The laboratory have again approached them for further supply and the supply is awaited. Further action to commercially exploit the process can only be taken after successful trials on pilot plant and if supplies are adequate.

[C.S.I.R. letter No. 17/6/60-PC, dated 28th March, 1961.]

The Committee suggest that vigorous steps should be taken in consultation with the Forest Departments of various States to make the substitutes developed by the CLRI for imported wattle bark and its extract available on a commercial scale so that their import can be obviated.

The question of the supply of Vegetable Tanning Materials (including Wattle bark) to the Leather Industry is under consideration of the Development Council for Leather, Leathers & Pickers Industries constituted under the Ministry of Commerce and Industry for examining the existing availability of such materials. A Vegetable Tanning Materials Sub-Committee was also set up with the Dy. Inspector General of Forests (in the Ministry of

Food and Agriculture) as Convener. On the suggestion of this Sub-Committee all States were addressed to furnish specific data on the availability of tanning materials such as barks of Avaram, Sonari, Babul and Wattle. It was observed from the replies received that no reliable data was maintained for this purpose and the data supplied was meagre. However, the Sub-Committee considered the information made available and also examined the supply and demand position in the country. The report of the Sub-Committee was considered by the Development Council for Leather, Leather Goods and Pickers Industries at its meeting held on 28th November, 1960. Relevant extracts from the minutes of the meeting are as follows:—

Plantation of Wattle: Raising wattle plantation would obviate the necessity of imports of wattle bark and its extracts and in case of over production, the surplus could be utilised for export, thus earning valuable foreign exchange for the country. As Madras is already reaching a saturation point in growing of

wattle, the Council accepted the recommendation that the States of Assam and Kerala which possess the special ecological conditions for the growing of wattle be requested to encourage raising of wattle plantation in their States.

Production and collection of tanning materials from the various areas:

Most of the tanning materials occur sporadically or gregariously to some degree over the entire country and more especially in forest areas and higher yields of tannins could be obtained by better methods of collection and production from the various areas. The Council recommended that State Forest Departments be requested to consider the feasibility of evolving and introducing improved techniques in collection and production of vegetable tanning materials from various available sources in the country, more particularly in the forests.

Further necessary action on the above-

The Committee suggest that commercial exploitation of the articles mentioned in para 96 (excepting fat liquors production of which has already been taken up by the commercial firm) should be expedited.

recommendations will be taken by the Ministries concerned.

[C.S.I.R. letter No. 17/6/60-PC, dated 16th February, 1961.]

The recommendation is accepted. The National Research Development Corporation has circulated non-technical notes to industry in respect of the following three processes:—

- (1) Enzyme Depilant.
- (2) Enzyme Bates.
- (3) Latex Cement.

The process on Fat Liquors has been already leased out for commercial exploitation. Commercial exploitation of other processes will also be taken up as soon as the processes are ripe for the purpose in all respects.

[C.S.I.R. letter No. 17/6/60-PC, dated 24th January, 1961.]

The Committee suggest that the CSIR should endeavour through NRDC to see that the processes mentioned in para 98 are utilised commercially without undue loss of time.

The latest position regarding the commercial utilisation of the processes mentioned in the recommendation is as under:—

1. Cuprous Oxide: The process has been handed over to M/s.

1**2****3****4**

Pigments & Chemical Industries (Private) Ltd., Calcutta and M/s. Technico Enterprises Ltd., Calcutta. Production has been commenced by the latter.

2. **Calcium Gluconate:** This process refers to certain improvements made over the existing technique. No party has approached the N.R.D.C. for its commercial exploitation.
3. **Copper Powder:** The know-how has been handed over to two interested commercial parties.
4. **Zinc:** The know-how is available and can be made over to interested parties.
5. **Para Aminophenol:**
6. **2:4 diaminophenol:**

} Non-technical notes

based on the work so far done have been finalised and passed on to the N.R.D.C. for further action.

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7. *Primary Wet Cell:* Trials are in progress. Modifications of cells are being effected and further trials are proposed to be conducted.
8. *Salicylaldehyde:* The know-how has been handed over through the N.R.D.C. to Messrs. Dahyabhai Chhaganlal of Bombay and the party will be trained up in the operation of the cells.
9. *Benzaldehyde:* Large scale trial on a priority basis is being taken up with a view to finalising the costing data for the process.
10. *Instrument for measuring the thickness of electroplates:* A technical note on the instrument has been prepared and distributed to interested parties. The instrument was also demonstrated to an officer of the E. & M.E. Branch of the Army, who were interested in it.

Another simple instrument has also been developed for control and inspection purpose to meet the need of

most of the plating shops and government inspection organisations. A number of stripping solutions have also been developed for testing different combinations of plated and basic metals. The work is nearly complete.

11. *Technique for wave-length calibration of spectrophotometer*: The new technique has been published for the benefit of all scientific workers.

12. *Technique on "Redoxo-kinetic titration"*: The work is of fundamental interest and is in progress.

[C.S.I.R. letter No. 17/6/60-PC, dated 16th February, 1961.]

Since CECRI, which is of All India importance is located at Karaikudi, the Committee suggest that retiring rooms/waiting room at the Karaikudi Railway Station and a Guest House at the Institute should be provided early.

The question of providing a guest house in Central Electro-Chemical Research Institute, Karaikudi is under consideration.

As regards providing retiring rooms/waiting room at the Karaikudi Rail-

Further information called for by the Committee

The latest position may please be stated.

(L.S.S. O.M. No. 32-EC-II/60, dated 21st October, 1961).

The Committee regret to note that the talent of promising Indian scientists and technically qualified persons is not fully utilised for the benefit of the country due, in some measure, to the tardy and cumbersome procedures. They suggest that suitable

way Station, the recommendation has been referred to the Ministry of Railways.

[C.S.I.R. letter No. 17/6/60-PC, dated 21-1-1961].

The proposal for construction of a Guest House at the Central Electro-Chemical Research Institute, Karaikudi is still under consideration.

As regards retiring rooms/waiting room at the Karaikudi Railway Station, the Ministry of Railways have intimated that the estimate for providing a new Station building with upper class waiting room at Karaikudi was sanctioned in May, 1961 and 35 per cent of the work has so far been completed.

[Min. of SR & CA OM. No. 17/6/60-PC II, dated 17th February 1962].

This is a matter which concerns all appointing authorities—the Central Government, State Governments, Public Undertakings etc.

2. Certain steps have been taken by the Central Government to quicken

machinery should be evolved for reducing the delays caused in the process of selection and appointment of candidates to posts in the public sector.

the processes of selection and afford more opportunities for suitable employment of Indian Scientists and Technologists abroad in positions for which they may be suitable. Classified lists of Indians abroad are circulated periodically by the National Register Unit of the CSIR to all employing authorities both in Public and Private sectors. The Union Public Service Commission as also most of the State Public Service Commissions have agreed to consider the persons included in these lists automatically for all posts advertised by them for which they may be considered *prima facie* suitable. It may be mentioned also that the Chairman of the U.P.S.C. has been visiting Europe and America annually in order to interview Indians in those countries at appropriate centres to assess their suitability for appointments entrusted to the Commission.

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3. A Scientists' Pool with a reserve of 200 posts has been created to provide

temporary placements to well qualified scientists including both foreign trained personnel and persons with high Indian qualifications. Appointments to the Pool are now made more or less on the lines of open continuous selection and it is expected that this new procedure will avoid delay in the appointments to the Pool of highly qualified Indians on their return.

4. In addition it has been agreed that the Directorate General of Employment and Training would compile information relating to vacancies for well qualified scientific personnel and publish a bulletin for the information of prospective candidates. A policy decision has also been taken for the organisation of an Employment Wing in the National Register Unit in the C.S.I.R. for well qualified Scientists and Technologists.

5. These measures would appear to be generally suitable for ensuring that well qualified scientists do not have to wait long before securing suitable employment. The position is periodically reviewed by the Directorate of Manpower (Ministry of Home Affairs) in consultation with the C.S.I.R. and the concerned agencies,

The Committee recommend that CSIR should carefully analyse the reasons for the poor response to the offers made to the selected candidates for appointment to the CSIR Pool and see whether any modifications are necessary in the existing scheme. It would be helpful if the Indian Embassies would keep in touch with the Indian scientists abroad and be of assistance in securing their services to the country. The CSIR may make use of the Embassies for this purpose.

and further steps may be taken if found necessary.

[C.S.I.R. letter No. 17/6/60-PC, dated 28-3-1961].

The position regarding the Scientists selected to the Pool has considerably improved. Out of 360 persons selected to the Pool so far, 204 are in India. The position as on February 1, 1961 is as follows:—

(i) Employed in India	124
(ii) Working under Pool attachment ..	60
(iii) Placement arranged; joining reports awaited ..	6
(iv) Final acceptance awaited ..	6
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2. Among those who are currently abroad, the position is as follows:

(v) Offered regular appointments by different organisations	
in India ..	5
(vi) Pool placement arranged ..	11

(vii) Placement to be arranged:

(a) expected before		
31-3-1961	..	18
(b) expected before		
30-6-1961	..	14
(c) expected before		
31-12-1961	..	22
(d) Others	..	7
(viii) Acceptance awaited after clarification		10
(ix) No replies received	..	32
(x) Declined Pool Offer	..	40
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3. It may thus be observed that out of 350 persons who were offered, 204 have returned to India; 192 of these persons are temporarily or permanently fixed up. Placement orders have been issued to 6 persons. Only 6 persons who have yet to send their final acceptance are left. Presumably these persons are not in need of urgent employment assistance.

4. Among 156 persons who are currently abroad, 74 persons have accepted the offer. Their placements are being arranged so that they may be posted on return to India.

In view of the important role played by science and technology in the modern civilization it is very necessary that the spirit of research is consciously fostered in the country.

5. The number of persons who have indicated that they are not interested in the Pool for temporary placement is 40. Most of these are in employment abroad and wish to return on offer of suitable regular employment.

6. A procedure has been evolved under which selections to the Pool will be a more or less continuous process, so that persons who are sufficiently highly qualified as to merit inclusion will not have to wait unduly long before appointment. It is expected that as a result the intake into the Pool will increase.

7. Arrangements have also been made with the Ministry of External Affairs to request our Embassies and Missions to assist in enrolment of Scientists abroad. Those enrolled are automatically considered for Pool positions.

[C.S.I.R. letter No. 17/6/60-PC, dated 28th March, 1961].

The recommendation has been brought to the notice of the Directors of National Laboratories. The measures taken by the C.S.I.R. for improving the service conditions of

The chain of National Laboratories established throughout the length and breadth of the country no doubt plays a very vital role in this regard. These National Laboratories and similar other institutions, specially in the public sector, should create and maintain an atmosphere conducive to research. The scientific workers working in these institutions, who by their devotion to work and initiative make original contribution to the field of scientific research, should be given proper encouragement and suitable incentives. The Committee cannot fail to take note of the recent case of suicide by Dr. M. T. Joseph of the Indian Agricultural Research Institute which brings this problem into sharp focus; for he only typifies the hard lot of many other qualified scientists who are suffering for want of opportunities and encouragement. Care will have to be taken to see that the slow-moving procedures of Government Departments do not act as damper to the enthusiasm and initiative of the young scientific workers.

scientists in National Laboratories and giving incentives to them have been indicated in reply* to para 32 of the 76th Report which may be referred to in this connection.

On the recommendation of the Special Committee appointed by the Governing Body, a scheme of decentralisation and delegation of its powers was approved in 1955. In pursuance of this decision, the Directors of National Laboratories have been delegated administrative and financial powers on a broad basis and an Executive Council has been appointed for each laboratory. The Executive Council is responsible for the control and general direction of the laboratory within the framework of the rules and regulations and directions issued by the Governing Body from time to time.

The functions of the Executive Councils include the consideration of scientific programmes, review of the progress of research, advice on matters relating to patents and publications, framing of the annual

*See p. 7 of the Report.

budget, determining the strength of staff, purchase of equipment and provision of laboratory accommodation etc. To relieve the Directors as much as possible of routine work and to enable them to devote attention to the direction and coordination of research work and to keep in intimate touch with the research workers at all levels, Administrative and Accounts Officers have been provided in each laboratory to deal with day to day administrative and accounts matters. Thus necessary measures have been taken to ensure speedy disposal of all matters relating to National Laboratories.

[C.S.I.R. letter No. 17/6/60-PC, dated 28th March, 1961].

The Committee suggest that the question of delays in the supply of equipment by the D.G.S.&D. be taken up by the C.S.I.R. with the D.G.S.&D. They also suggest that the possibility of further delegation of powers in making local purchases

The National Laboratories/Institutes have been consulted. Certain suggestions have been received for expediting the purchase procedure through D.G.S.&D. These have been examined and the matter is being taken up with the D.G.S. & D.

for urgent needs and of improving the liaison between the CSIR and the D.G.S. & D. may be carefully examined.

Directors have powers to sanction expenditure for purchases upto Rs. 10,000/- on individual items, and the Executive Councils of the Laboratories have full powers above Rs. 10,000. The power to sanction expenditure also includes the power to allow direct purchase, where considerations such as sole manufacturer, sole agency, highly specialised equipment, urgency of need etc. are concerned.

The Secretariat of the Council maintains liaison with the D.G.S.&D. and any cases referred by the Directors are followed up by personal contacts.

[C.S.I.R. letter No. 17/6/60-PC, dated 6th May, 1961].

The question of production of instruments and apparatus within the country was recently examined in detail by a Committee of experts set up by the Planning Commission. In so far as such production by research laboratories is concerned the Committee's views were as under:—

The National Laboratories under the Council of Scientific & Industrial Research and some of the other

The Committee suggest that the savings in foreign exchange as a result of the equipment designed and fabricated by the National Laboratories should be consciously encouraged and the import of scientific equipment from abroad kept to the unavoidable minimum and gradually eliminated.

research institutions in the country also fabricate, to some extent, some of the specialised instruments and apparatus required for their own work. Many of the laboratories are equipped with modern workshops and are in a position to undertake fabrication of the instruments developed by the research workers and also rig up some instruments from components and raw materials.

Normally, research laboratories with scientists engaged in research are not expected to undertake production of instruments and apparatus as it would be uneconomic. It has been estimated by a large manufacturing concern in U.K. that the time of the average scientist is worth more than £2.10s per hour to the firm. The firm came to the conclusion that it would not be economic for the scientist to be building apparatus which can be bought at about 15 shillings an hour. Except in the case of an emergency, it is cheaper for a research laboratory to buy instruments than fabricate them.

Making instruments is only an ancillary job for a scientist and too much time spent by him on it would be wasteful. However, in cases where new instruments are developed as a result of research or for the purpose of investigating a phenomenon for which no instrument exists, it becomes essential for a research laboratory to build its own instruments. But such cases are exceptional. Nevertheless, in the present context of foreign exchange difficulties, the National Laboratories have made instruments to satisfy a part of their own requirements. But it would not be advisable for research laboratories to engage themselves in any large scale production programme.

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It will be seen from the above that the problem is one of stepping up and diversifying indigenous production of scientific instruments in the country. To this end, Central Scientific Instruments Organisation has been set up with the object, *inter alia*, of setting up design and development units, encouraging centres for instrument production

The Committee suggest that the problem relating to the disposal of textile mill effluents, which has been referred by the ATIRA to the Central Public Health Engineering Research Institute, Nagpur and the National Chemical Laboratory, Poona may be investigated with the utmost expedition.

and of providing facilities for the development of techniques and skills, etc. It is hoped that in course of time the production of scientific instruments and equipment will expand sufficiently so as to cut down import to the minimum possible. The import of highly specialised equipment cannot however be entirely ruled out; even highly developed countries import specialised equipment from other countries to avoid expenses of time and energy on developing such equipment *de-novo*.

[C.S.I.R. letter No. 17/6/60-PC, dated 16th February, 1961].

The question of treating textile wastes before their discharge into a stream or a river has already been taken up by the C.P.H.E.R.I., Nagpur. The first mill taken up for investigation is the 'Raja Bahadur Moti Lal Mills Poona'. The effluent from this mill, which is discharged into the Mula-Mutha river, has been collected and analysed over a period

of nearly one year for finding its constituents. The data collected has been compiled and carefully studied. These studies indicate great pollution in the river due to high suspended solids in the effluent from the mill and to very low dissolved oxygen content in the river.

It is now proposed to carry out laboratory scale experiments at the premises of the mills for finding a suitable solution for the treatment of this effluent as economically as possible. Steps are being taken to install a small experimental plant in collaboration with the mill authorities.

The effluent from textile mills at Nagpur is also being studied by the C.P.H.E.R.I. with a view to obtaining a suitable and economical solution for its treatment.

The work does not come within the normal scope of the National Chemical Laboratory, Poona, but if any chemical investigation is required by the ATIRA or CPHERI, that laboratory will give necessary assistance.

[C.S.I.R. letter No. 17/6/60-PC, dated 28th March, 1961].

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The Committee suggest that the CSIR should take up the problem of disposal of leather tanning effluents.

A model scheme is being prepared by Central Leather Research Institute for treatment and disposal of tannery effluents, as suggested in the recommendation.

[C.S.I.R. letter No. 17/6/60-PC, dated 16th February, 1961].

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The Committee consider that a scheme of talent search directed towards spotting scientific talent at a fairly early stage of student life and fostering these by providing suitable incentives, adequate facilities and proper guidance, is bound to yield results in the long run. They, therefore, urge that a comprehensive scheme of talent search should be expeditiously formulated and implemented in consultation with the State Governments.

The question of implementation of the Scientific Policy Resolution of the Government of India was considered at a Conference of leading scientists, Vice-Chancellors of Universities, educationists, etc., held in July, 1958, under the chairmanship of the Minister for Scientific Research and Cultural Affairs. It was *inter alia* recommended that search for scientific talent should start at the higher secondary school level by instituting suitable machinery to select and place scholars in appropriate institutions and that at least 15 to 20 per cent of students admitted to Universities and other institutions of higher education (including National Laboratories)

should be given scholarships. This recommendation has been brought to the notice of State Governments and the Ministry of Education. The State Governments are generally in agreement with this recommendation and the Ministry of Education have stated that proposals have been framed by them to award 10,000 merit scholarships to post-marticulate students in India during the Third Five Year Plan in consultation with the Planning Commission.

(2) The State Governments have also been requested to adopt a scheme of talent search on the lines of the scheme introduced by the Government of Uttar Pradesh. The scheme of talent search initiated by the Jagdish Bose National Science Talent Search has also been circulated to the State Governments for such action as they may consider proper.

(3) The Ministry of Education is requisitioning the services of an expert from the U.S.A. under the Ford Foundation to help in the

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The Committee are of the view that some recognition in the form of higher initial salary should be given to persons with research work to their credit *vis-a-vis* the direct entrants to service who may not have spent any time on research. The question may, therefore, be examined by the Ministry with a view to evolve a suitable scheme in this regard.

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The Ministries concerned should make conscious efforts to persuade the industry, both in the public and the private sectors, to contribute generously towards promotion of scien-

formulation and institution of a scheme of talent search in India.

[Min. of S.R. & C.A. O.M. No. 16 (124)/60-SR III dated 3/5-12-1960].

Experience of research is either an essential or desirable qualification for recruitment to the scientific posts in Class I & II. Recruitment to these posts is normally made through the U.P.S.C., who generally recommend grant of higher initial pay in deserving cases and the Ministries concerned, having due regard to the recommendations of the Commission, generally grant higher initial pay to direct recruits with higher educational qualifications and research experience.

[Ministry of S.R. & C.A. O.M. No. F. 16 (119)/60-S.R. III dated the 21st August, 1961].

The recommendation of the Estimates Committee was brought to the notice of Industry both in the public and the private sectors. Both the Sectors have informed that they are

the research and offer suitable employment for research personnel as in other advanced countries. This can be facilitated by ensuring that the research projects selected are such as are of direct utility to the industry concerned, for then the experience gained by the research scholars can be usefully employed in that industry.

following the recommendation of the Estimates Committee.

[Ministry of S.R. & C.A. O.M. No. 16(118)/60-S.R. III dated March, 1962].

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The Committee are of the view that important advantages, such as promoting close relationship between research and field workers necessary for coordinated activity, engendering keenness on the part of the field workers to apply research results and bringing to the research workers an awareness and appreciation of practical problems could be secured by a scheme whereby research workers are given opportunities for field work and field workers take up research in suitable cases for some period. They recommend that the Ministry of Scientific Research and Cultural Affairs should examine carefully the suggestions made by the Panel of Scientists on similar lines, in consultation with the Ministries concerned, with a view to

The recommendation of the Estimates Committee is being followed.

[Ministry of S.R. & C.A. O.M. No. 16(113)/60-S.R. III, dated March, 1962].

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devising a suitable scheme incorporating this idea.

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The Committee consider that mere circulation of the reports submitted by the scientific delegations sponsored by the Ministry of Scientific Research and Cultural Affairs to the Ministries concerned and also State Governments (in cases where it was found necessary) for necessary action is not sufficient. It is necessary that the Ministry having sponsored a delegation should in the first instance themselves carefully scrutinise the reports, assess the applicability of the recommendations and thereafter maintain a close follow-up of at least the important recommendations.

Noted.

[Ministry of S.R. & C.A. O.M. No. 21 (17)/61-S. R. II, dated the 26th/28th July, 1961].

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The Ministry may consider the question of publishing the important recommendations of scientific delegations together with the action taken thereon.

Noted.

[Ministry of S.R. & C.A. O.M. No. 21(17)/61-S.R. II, dated the 26th/28th July, 1961].

(Further information called for by the Committee.)

The result of consideration of the Committee's suggestion may please be intimated.

[L.S.S. O.M. No. 31-EC-II/60, dated 21-10-1961].

The Committee recommend that a high-powered commission may be appointed early to make an appraisal of science education in all its aspects particularly curricula, selection of students, equipment, training facilities and research so that it may be possible to lay the foundation of a sound system of science education as in other scientifically advanced countries.

The suggestion has been noted. Necessary action on the recommendation will be taken as and when occasions arise.

[Ministry of S. R. & C. A. O.M, No. 21(8)/61-S.R. II dated the 16th/18th January, 1962].

In view of the announcement made by the Minister of Education in the Lok Sabha on the 16th March, 1960 that the Government proposed to appoint a high-powered Science Commission to survey the whole field from the school to the university stage with a view to improve science teaching at all levels, the Ministry of Education were requested to confirm that necessary action on the above recommendation was being taken by that Ministry. The Ministry of Education have stated in their U.O. No. 3096/61 SE. 1 dated the 1st May, 1961 that they are taking action to set up a small committee for the purpose.

[Ministry of S.R. & C.A. O.M. No. 21 (8)/61-SR. II dated 16th/17th May, 1961].

Further information called for by the Committee.

It may please be stated if the Committee has since been appointed. The composition of the Committee and terms of reference may be furnished.

[L.S.S.O.M. No. 31-E.C.II/60 dated 21-10 1961]

The Ministry of Education have intimated that the preliminaries for the appointment of this Committee are in hand and it is expected that an announcement in this regard will be made shortly.

[Ministry of S.R. & C.A. O.M. No. 21 (8)/61-S.R. II dated 28/30-4-1962].

The National Council of Educational Research and Training, set up by the Ministry of Education has since constituted a Committee on Science Education. The composition of the Committee and its terms of reference are as under:—

Composition of the Committee :

- | | |
|---|----------|
| 1. Prof. Mahalanobis,
Members, Planning Commission, New Delhi. | Chairman |
| 2. Dr. D. S. Kothari,
Chairman, University Grants Commission, New Delhi. | Member |

- | | |
|---|------|
| 3. Shri Vikram Sarabhai,
Professor, Physical Research
Laboratory, Ahmedabad. | -do- |
| 4. Dr. P. Maheshwari,
Head of the Deptt. of
Botany, University of Delhi,
Delhi. | -do- |
| 5. Prof. R. P. Bambah,
Deptt. of Mathematics,
Punjab University,
Chandigarh. | -do- |
| 6. Dr. K. P. Basu,
Officer on Special Duty,
Planning Commission,
New Delhi. | -do- |
| 7. Dr. A. C. Joshi,
Vice-Chancellor, Punjab
University, Chandigarh. | -do- |
| 8. Shri S. Natarajan,
3, Thiruvengadam Street,
Raja Annamalaiapuram,
Madras-28. | -do- |
| Shri U. P. Basu,
Director, Bengal Immunity
Research Institute, 39,
Acharyya Jagdish Bose
Road, Calcutta-16. | -do- |
| 10. Shri R. R. Singh,
Joint Educational Adviser,
Ministry of Education,
New Delhi. | -do- |

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11. Shri N. Ram Lal. Member
Retired Director of Public
Instruction, Bashir Badh
Road, Hyderabad-1.

Terms of reference

To enquire into and recommend measures for the improvement and expansion of the teaching of science at all stages of education, particularly at the school level, for developing scientific talent in the country and training of science teachers.

[Ministry of S.R. & C.A. O.M. No. 21(8)/61-S.R. II dated 28-7-62].

CHAPTER III
REPLIES OF GOVERNMENT THAT HAVE BEEN ACCEPTED BY THE COMMITTEE

A. 76th Report

S. No. (as in the Appendix XXI of the 76th Report)	Reference to Paragraph No. of the Report	Summary of recommendations/Conclusions	Reply of the Government
1	2	3	4
5	20	The Committee do not share the apprehension that the conversion of the CSIR into a statutory body will introduce an element of rigidity in its working which would hamper its activities. On the other hand, such a step would place the organisation on a proper footing and enable it to function with well defined authority. They recommend that the CSIR may be placed on a statutory footing.	At its meeting held on the 17th October, 1959, the Governing Body of the Council of Scientific and Industrial Research considered the recommendation of the Public Accounts Committee about Council of Scientific and Industrial Research being placed on Statutory basis and came to the unanimous conclusion that the question of embodying the functions of the Council of Scientific and Industrial Research in a statute may be deferred for sometime and taken up after the trend and pattern of

scientific and technological development in India has been better oriented and defined in relation to the world developments. The Government of India also agreed in this view and considered that it was in the national interest to continue the present character of the Council.

As the above decision was only taken quite recently, it is not considered necessary to take any immediate action on this recommendation of the Estimates Committee.

[C.S.I.R. Letter No. 17/6/60-P.C., dated, the 13-1-1961].

The Committee suggest that the question of merging the Pool Section with the "National Register Unit" and thereby affecting economy in staff may be examined.

The number of Scientists and Technologists actually working as Pool Officers as on 1-11-1960 was 52. The volume of the work of the Pool Section is, however, not to be judged solely with reference to this number. As many as 361 persons were actually selected to the Pool from time to time; and correspondence has had to be carried on with all these persons, as well as the organisations in which there is

possibility of their being employed. Placements have in fact been arranged in respect of 43 Pool Officers, most of whom are still abroad and are either expected to join on their return or are in correspondence with us on various points relating to their position in the Pool. The Pool Section also has to deal with all matters relating to the pay, allowances, leave etc. of the Pool Officers. For this work, a Section with a Section Officer, 1 Assistant, 2 U.D.Cs and 3 L.D.Cs. cannot be said to be on the high side. The Council of Scientific and Industrial Research has been keeping down the strength of the Section so that as much economy as possible is effected on administrative staff handling the Pool.

As a result of certain changes in the procedures made in consultation with the Home Ministry and U.P.S.C., it is expected that the intake into the Pool may increase in the near future. In that case it will be necessary to strengthen the Pool Section; but this will be done in consultation with Finance and consideration of economy will certainly be borne in mind.

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As regards the merger of the Pool Section in the National Register, the functions of the Pool Section are quite distinct from those of the Register. The Pool Section is, as stated above, in the nature of an establishment section and deals almost exclusively with matters relating to appointments, placements, pay and conditions of service of the Pool Officers. On the other hand, the National Register as an Organisation devotes itself to the compilation and maintenance of a record of well qualified Indian scientists and technologists both in India and outside statistics of their employment and other particulars about them. It seeks to provide a central clearing house for information concerning such personnel and also helps to bring such persons in contact with employers. Selections to the Pool are made by the U.P.S.C. on the advice of a Special Recruitment Board on the basis of information compiled by the National Register. It will thus be seen that

The Committee suggest that the powers of the Director to sanction expenditure on purchase of apparatus and on construction and maintenance works may be reviewed and suitably modified.

the functions of the National Register and the Pool are distinct and separate. It appears, therefore, that no advantage will be gained by integrating the Pool Section in the National Register. In any case, as will be clear from what is stated above, administrative expenses on handling Pool Officers is already being kept to the bare minimum and it is not likely that any further economies can be made.

It is, of course, realised that proper co-ordination has to be established between the National Register and the Pool Section. This is ensured by entrusting the charge of the National Register and of the Pool Section to a single officer.

[C.S.I.R. letter No. 17/6/60-PC, dated 13-1-1961].

The general question of delegation of powers to Directors is reviewed from time to time. The question was last considered at the Directors Conference held early in 1960. The Directors were generally satisfied with the existing delegation but had suggested that the power for

undertaking petty works may be enhanced from Rs. 5,000 to Rs. 10,000 in each case. This has since been approved and the necessary orders have been issued accordingly. It has not been considered necessary to increase the existing powers regarding purchases which are to the extent of Rs. 10,000 in each case.

[C.S.I.R. letter No. 17/6/60-PC, dated 13-1-1961].

While the Committee note that some donations have been received by the CSIR, they feel that for a big country like ours, the response of the industry has not been encouraging and suggest that suitable steps be taken to promote the idea of the complementary roles of research and industry and the consequential benefits accruing to the later.

There are two aspects to the question of donations by industry to scientific research; one is donations specifically made to CSIR and the other is contribution that industry makes for the development of scientific research in general.

While in the initial stages the CSIR received a number of donations from private industry, of late, there has not been much development in the matter of donations. The policy of the Council in this matter is that donations should be voluntary and without conditions. In the light

of the policy, the Council had to decline a donation offered by an industrialist as a condition was stipulated that the institute should be named after a person. It is now the accepted policy of the Government of India that scientific research should be developed and fostered as a direct charge on the Government. This is contained in the Scientific Policy Resolution dated the 4th March, 1958. In pursuance of this policy, the Council while welcoming voluntary donations without conditions need not canvass for donations as it may not be appropriate to do so being the premier organisation set up by the Government with the express task of development of scientific research and as the Government have accepted the responsibility of finding the means for its activities. In the Rules and Regulations of the Council, there was a rule that a nominee of a firm or an institution which donated a sum of not less than Rs. 5·00 lakhs could be a member of the Governing Body of the Council. This rule was amended in 1956 raising this figure to Rs. 25·00 lakhs. Now only individual donors contributing Rs. 5·00 lakhs could be members but even

this will be at the discretion of the Government of India.

As regards the other aspect, namely the promotion of the idea of the complementary role of research and industry and that industry should contribute towards the development of scientific research, considerable progress has been made. Since the setting up of the Council, it has been fostering this idea among various groups of industry and steps have been taken to establish research associations by industrial groups on cooperative basis. Direct and indirect inducements are provided to industry to enable them contribute to research associations and research institutions. The question of further inducements such as income-tax concessions for development of scientific research by industrial units in their own establishments is also under consideration.

[C.S.I.R. letter No. 17/6/60-PC, dated 16-2-1961].

The main purpose of the fellowships awarded by the CSIR is to train

The Committee consider that it is desirable to provide for a suitable

penalty to be paid by the recipient of the award of a research fellowship who leaves before the expiry of the period of award.

(Further information called for by the Committee).

Particulars of the Scientific or other post/research work taken up by the fellows who left before the expiry of the period of the award or the last two years may please be furnished.

(L.S.S. O.M. No. 27-EC.II/60 dated 20-4-1961).

young scientists in different disciplines for scientific careers. Any condition in the rules involving liability to refund the fellowships amounts, or other penalties, will, it is feared, discourage first class candidates from applying for our fellowships. Normally, if a recipient of a fellowship decides to leave before the expiry of the period of the award, he does so with the permission of the Council; and ordinarily he does so in order to take up a scientific post, or to continue his research under other assisted schemes or pursue his studies abroad.

[C.S.I.R. letter No. 17/6/60-PC, dated 16-2-1961].

Normally if research fellows decide to leave before the expiry of term of the award, they obtain the permission of the Council. However, they do not always communicate to CSIR full details about their future career. Particulars in this respect of those research fellows who left before the expiry of the period of the award in the past two years and which are available with the Council are given in the enclosed statement.*

[C.S.I.R. letter No. 17/6/60-PC, dated 21-9-1961].

*See Appendix IV.

The Committee recommend that prompt and vigorous steps should be taken to augment the Extension Service of the CFTRI so as to ensure that the benefits of research reach the common man.

There is an optimum limit beyond which a research laboratory cannot go in propagating research results throughout the country. After a process is developed, proved and demonstrated to be of value through extension techniques over a limited area, its popularisation and application over the whole country and the manufacture and distribution of products, have to be carried out by other agencies, Governmental and private industry. The C.S.I.R. has accepted as its responsibility extension work to the extent described above and staff required for this purpose is provided.

The Division of Information, Statistics and Extension Services in the Central Food Technological Research Institute has at present a total strength of 39. Of these 22 are technical staff. A Special Officer has also been appointed for coordinating the work of the regional research stations. This strength is considered to be adequate and if any additional staff is required at any time it will be duly considered.

[C.S.I.R. letter No. 17/6/60-PC, dated 13-1-1961].

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The Committee recommend that the system obtaining in the U.K. regarding the recovery of charges for work done by the Research establishments of the Department of Scientific and Industrial Research for industry may be adopted by the National Laboratories of the CSIR with such minor modifications as are considered absolutely necessary.

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The Committee recommend that concerted and determined efforts should be made by the Council and its National Laboratories to increase the receipts for the work undertaken by the National Laboratories on behalf of industry and Government Departments. The Committee trust that if the present system of charging fees by the National Laboratories is modified on the lines of the system obtaining in the U.K., it would help in augmenting the income accruing to the National Laboratories from this source.

(Further information called for by the Committee).

Please state if definite principles or rules for the recovery of charges for work done by the National Labo-

The system followed in the National Laboratories for undertaking work on behalf of industry is more or less on the same lines as is obtaining in the DSIR, U.K., with suitable modifications. It is fully appreciated that the work undertaken on behalf of private industry should be charged as far as possible. However, the Directors, in consultation with the Director-General, Scientific & Industrial Research, have been given certain discretion in the matter of charging for individual items of work in the context of the relationship that a particular laboratory has built up with the concerned industry and the present status of development of that industry. Gradually, as the services of the laboratories begin to be appreciated by industry, the fees that are charged will be reviewed.

[C.S.I.R. letter No. 17/6/60-PC, dated 13-1-1961].

The Governing Body of the CSIR has already laid down the general principles and the present position has been explained in our reply to this recommendation. A review of the position will be undertaken at the

ratories for industry have been laid down.

(L.S.S. O.M. No. 27-EC.II/60 dated 20-4-1961).

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The Committee consider that studies of the research and development resources and requirements of the particular sectors of the industry are desirable and should be initiated. In this connection, the desirability of appointing a professional group of social scientists at the headquarters of the CSIR to undertake a continuous study of (a) service of research institutions to the industry (b) the needs of industry in terms of research and development, and other cognate matters may be considered.

appropriate stage in relation to the development of particular industries and in keeping with the basic object of helping industry to develop.

[C.S.I.R. letter No. 17/6/60-PC, dated 21st September, 1961.]

The implementation of the recommendation requires careful consideration. The UNESCO has initiated a Social Sciences Programme in the countries of South Asia. A research centre was established in 1956 in Calcutta with the collaboration of the Government of India. The Centre moved to Delhi on 1st January, 1961. It will continue to function till 1964 and possibly for a further period of two years. It is proposed to keep in touch with the work of this Centre and watch the progress and experience of the Centre before we consider launching on any programme in Social Sciences.

[C.S.I.R. letter No. 17/6/60-PC, dated 28th March, 1961.]

B. 78th Report

S. No. (as in Appendix XII of the Report)	Reference to Paragraph No. of the Report	Summary of Recommendation/ Conclusion	Reply of the Government
1	2	3	
2	8	The Committee consider that there is scope for economy in regard to "Pay and allowances of Officers" and "T.A. to Officers and Staff" and recommend that the matter may be examined with a view to bring down the expenditure under these two heads to a reasonable level.	<p>The question of effecting economy in "Pay and Allowances of Officers" has been taken up for examination by the Economy Unit of the Ministry</p> <p>As regards "T.A. to Officers and Staff", instructions have been issued to all concerned to take immediate steps to bring down the expenditure on Travelling Allowance in the Scientific Research Wing of the Ministry.</p> <p>[Min. of S.R. and C.A. O.M. No. 6(21) 59-Gen. of 6th October, 1960.]</p>
6	25	A saving of Rs. 23 lakhs is anticipated in the Second Plan provision of Rs. 200 lakhs for the development of scientific societies and institutes. The Committee suggest that the amount may be surrendered well in time so that, if necessary, it may be allocated to other plan items in need of additional grants.	<p>The saving of Rs. 23.00 lakhs anticipated by the Scientific Research Division in December, 1959 was utilized by the Technical Division of this Ministry for Schemes of Technical Education.</p> <p>[Min. of S.R. and C.A. O.M. No. 15 (76) 60-SR-II, dated 26th Feb., 1962.]</p>

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The Committee recommend that the proposal to make 'on account' payments to scientific societies and institutes ranging from 1/12th to 1/6th of the total grant for the year, or a fixed sum, according to the merits of the case, should be implemented early to overcome the financial difficulties experienced by some of these institutes due to delays in payments of grants.

In accordance with the general instructions issued by the Ministry of Finance (Department of Expenditure) during March, 1961, the payment of recurring grants-in-aid to Scientific institutes is regulated during a financial year in the manner indicated below :—

(i) The first instalment may be paid in the month of April itself. Since in the beginning of the financial year, 1/12 of the budget is placed at the disposal of the administrative Ministries 'on account', the first instalment of the grant may be sanctioned in April to enable the institutions to meet their expenses for the month of April.

(ii) The second instalment may be paid in the month of May, June, July, August or September, after the Budget has been sanctioned by Parliament to cover the expenses from May to September.

The Committee suggest that the feasibility of developing the Birbal Sahni Institute into an International Centre for Palaeobotanical research as also of providing assistance for inviting Palaeobotanists from other countries to work there may be examined.

The Committee recommended that the following schemes put forward by

- 'iii) The final instalment may be sanctioned in the month of October or later to cover the expenses of the rest of the financial year.

The above procedure adequately meets the requirements of the Scientific Societies and also obviates the difficulties referred to in the Report of the Estimates Committee. It is, therefore, not considered necessary to issue any further instructions in this behalf.

[Min. of S.R. & C.A. O.M. No. 5(68)/59-F(B)-S.R.-II. dated 4th, 5th July, 1962].

The Governing Body of the Institute is taking necessary action.

No request has recently been received from the Institute for assistance for inviting a Palaeobotanist from abroad. Such request, when received will be considered.

[Min. of S.R. & C.A. O.M. No. 15(76)/60-S.R. II dated 26th February, 1962]

the National Institute of Sciences should be expeditiously examined:

- (i) Institution of research professorships or readerships in various universities as done by the Royal Society of U.K.;
- (ii) publication of the scientific works of eminent scientists in the country;
- (iii) preparation of the History of Sciences of India.

Apart from the solitary work on the History of Indian Chemistry by Dr. P. C. Ray, there is no authoritative publication setting out the History of Sciences of India. Every advanced country has given priority to this subject. It is high time that the Ministry should act without delay, for it is bound to take a long time to complete the task. The Committee are of the view that this work should be given high priority.

(i) Any specific proposal in this behalf will be considered sympathetically.

(ii) Such books have been published from time to time embodying the work of scientists and scientific depatts. and Govt. also encourage the publication of important work in Science.

(iii) Government have already sanctioned grants to the National Institute of Sciences for the preparation of the History of Sciences of India.

[Min. of S.R. & C.A. O.M. No. 15(76)/60-S.R. II, dated 26th February, 1967].

The Committee were informed that the estimated figures of Rs. 7 lakhs for capital expenditure in the budget of the National Research Development Corporation for 1959-60 as against the actuals of Rs. 2.58 lakhs in 1958-59 were not based on any forecasts of expenditure "reliable or otherwise". The Committee consider it doubtful whether even a moiety of the provision would be actually utilised. They suggest that some method may be devised to arrive at more realistic figures for inclusion in the budget estimates in future.

The Committee suggest that the question of appointing a Committee to review the functioning of the National Research Development Corporation may be examined by the Ministry.

The role of the National Research Development Corporation and its activities are closely linked with the output of researches of commercial value from various institutions. The output cannot possibly be forecast with any degree of accuracy and consequently it is difficult for Corporation to estimate even roughly the requirements of capital expenditure for developmental projects. Moreover even for approved projects there are many uncertain factors such as availability of foreign-exchange, vagueness about delivery schedules, non-availability of materials etc., which upset all estimates of capital expenditure. However, efforts are made to reduce the gap as far as possible.

[Min. of S.R. & C.A. O.M. No. 13(29)/59-S.R. I, dated 18th/19th May, 1961].

The Corporation was established in December, 1953. The constitution of the Corporation has recently been completely re-cast with the Minister for Industry as the Chairman of the Board of Directors. A statement showing its earlier constitution and as reconstituted now is

The question of empowering the Governing Council of the Indian School of Mines & Applied Geology, Dhanbad to accord administrative approval and expenditure sanction for works upto Rs. 10 lakhs in each case should be examined and an early decision arrived at as the Committee feel that this would accelerate the tempo of construction work.

attached.* It will be desirable to see how the Corporation functions for some time before any useful purpose may be achieved by a review of their functions by a Committee. It is considered that the appointment of a reviewing committee at this stage would be premature and that the question of appointing such a Committee will be taken up after the Corporation has functioned for at least 10 years.

[Min. of S.R. & C.A. O.M. No. 13(29)/59-S.R. I, dated 18th/19th May. 1961].

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The power to grant administrative approval and expenditure sanction for works upto Rs. 10 lakhs in each case was enjoyed by the Governing Council of the Indian School of Mines & Applied Geology, Dhanbad until recently when Govt. decided to centralise the budget provision for all Govt. works in the Ministry of W.H. & S. and consequently expenditure sanction in respect of works is being granted by that

*See Appendix V.

The Committee recommend that the proposal to provide a coal mine to the Indian School of Mines & Applied Geology for training and research purposes may be examined *de novo*.

(Further information called for by the Committee).

The latest position in the matter may please be stated.

[L.S.S. O.M. No. 29-EC II/60, dated 1-5-1962].

Ministry. This arrangement enables more effective scrutiny of the proposals for works being made by Government and ensures economy. Government propose to continue the present arrangements.

[Min. of S.R. & C.A. O.M. No. F-12-53/60-T. I, dated 4-3-61].

The recommendation is under consideration of Government. In this connection, the possibilities of a tie up with the Mining Research Institute for owning jointly a mine are being explored.

[Min. of S.R. & C.A. O.M. No. F. 12-53/60-T. I, dated 4-3-61].

Mining Research Station, Dhanbad did not favour the proposal for owning a mine. In view of this, it has been decided that the School should first consolidate its present activities and the question of owning a mine jointly with the Mining Research Station may be considered at some future date.

[Min. of S.R. & C.A. O.M. No. F. 12-60/62-T.I., dated 23/24-10-1962].

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The Committee suggest that comparison may be made of the ratio of expenditure on administration to the total expenditure of the Indian Institute of Technology with that of similar scientific institutes in the country and abroad to see if the charges are unduly high and some reduction is possible.

A comparison has been made with the ratio expenditure on administration to the total expenditure in the Indian Institute of Science, Bangalore and it is found that while in the I.I.T. Kharagpur, the expenditure on administration is 13.98% of the total expenditure, at the I.I.Sc. Bangalore, it is of the order of 11.14%. The following are the figures for the year 1959-60 for the two institutions:—

Name of the Institution	Total recurring expenditure	Expdt. on Admin's- tration	Ratio of (2) & (3)
1	2	3	4
	Rs.	Rs.	
I.I.T., Kharagpur	62,56,838	8,75,133	13.98%
I.I.Sc., Bangalore	48,53,678	5,40,882	11.14%

The reasons for this difference are that the I.I.T., Kharagpur has a much larger student body and has a much bigger campus. All the staff members of the Kharagpur Institute are housed on the campus, while

The Committee suggest that a phased programme for the replacement of the outmoded and obsolete equipment may be drawn up and incorporated in the Third Plan.

The Committee recommend that the Indian Institute of Science,

that is not the case with I.I.Sc., Bangalore. An analysis of the expenditure on administration at Kharagpur shows that out of the 13.98% expenditure on administration, maintenance of buildings, electricity, water supply and roads accounts for 2.96%; development of properties, land and gardens accounts for 0.64%; Security arrangements require 1.70%; and scavenging of the buildings and site require 0.71%.

Details of expenditure on a comparable institute abroad are not readily available.

[Min. of S.R. & C.A. O.M. No. F. 12-53/60-T.I., dated 4-3-1961].

The Third Five Year Plan makes provision for meeting the pressing needs of equipment to fill up the lacunae. The programme for the replacement of out-moded and obsolete equipment will be undertaken to the extent possible within the funds available.

[Min. of S.R. & C.A. O.M. No. F. 12-53/60-T.I., dated 4-3-1961].

In March, 1953, the Council of Scientific and Industrial Research

Bangalore should be assisted to take up further research in gas turbines work.

appointed a Committee under the Chairmanship of Shri J. R. D. Tata to advise the Council on the extent and scope of research to be undertaken under the auspices of the Council in the development of gas turbine and jet propulsion engines. This Committee submitted its report which was considered by the Governing Body of the Council at its meeting held on 22-3-1955. The main recommendations of the Committee which were accepted by the Governing Body of the Council were as follows:—

(i) that the Bengal Engineering College, Sibpur and/or the Indian Institute of Technology, Kharagpur under the leadership of Dr. S. R. Sen Gupta should continue the work from the educational point of view;

(ii) that the bulk of the research effort on gas turbine development in India should be centred at the Internal Combustion Engine Department of the Indian Insti-

tute of Science, Bangalore, with the object of developing three basic prime movers in the ranges 50 to 150 H.P., 10 to 15 H.P. and 2 to 5 H.P.; and

- (iii) that we should not waste money on research in the field of gas turbine aero-engines except to the limited extent required for educational purposes and for training technicians and research workers in this field.

As certain decisions and action taken subsequently were at variance with the original recommendations made by the Committee, Shri J. R. D. Tata drew attention to this matter at the meeting of the Governing Body of the Council held on the 31st March, 1959. As some of the recommendations still remained to be implemented, the Governing Body decided that the same Committee, including the Director-General, Council of Scientific & Industrial Research, and excluding Dr. J. C. Ghosh (who had expired) and Prof. O. A. Saunders, should review its original recommendations in the light of subsequent developments, and submit a report for consideration.

The Committee held two meetings, on May 19, 1959 and March 26, 1960. At the first meeting of the Committee held on 19th May, 1959, Shri J. R. D. Tata, Chairman of the Committee, suggested that Dr. Bhabha and Prof. Thacker might discuss, during their visit to U.K., with Prof. Saunders, Prof. of Mechanical Engineering, City and Guilds Institute, Imperial College of Science and Technology, London, and find out the latest development regarding manufacture and development of gas turbine-engines in other countries. Although neither Prof. Thacker nor Dr. Bhabha could find time to discuss the matter with Prof. Saunders, it was discussed by Prof. Thacker with Dr. Hayne Constant, Director of the National Gas Turbines Establishment, U.K., at the time of his visit to India in January, 1960. Apart from the personal discussion in Delhi between Prof. Thacker and Dr. Constant, Dr. Constant communicated his view in

writing after his return to U.K. The final opinion of Dr Constant on the subject was:

" . . . It is not wise to allow ourselves to be rushed into putting large resources into each new technological advance . . . I have no doubt that the gas turbine will play its part in India, but it will probably be a far less important part than that of the piston and steam turbine."

In the last meeting of the Committee held on 26-3-1960, the Committee considered the opinion expressed by Dr. Constant and, after consideration of the problem in the light of the recent developments in the country such as establishment of a Centre for developing jet engine, development of new types of engines such as the NSU engine and the possibility of striking oil in India, the Committee made the following recommendations:—

- (i) that the original proposals of establishing a Centre exclusively for Gas Turbines research need not be pursued.
- (ii) establishment of a Centre at Indian Institute of Science,

Bangalore, for the development of such engines should not also be pursued.

(iii) that the question of training the technologists in this field of research should be taken up by the Indian Institute of Science, Bangalore separately.

The above-mentioned recommendations have been accepted by the Governing Body of the Council at its meeting held on 5-11-1960 and therefore the question of assisting the Indian Institute of Science, Bangalore, to take up further research in Gas Turbines work does not arise.

[Min. of S.R. & C.A O.M. No. F.13 (29)/59-SRI, dated 18/19-5-1961].

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The Committee suggest that suitable steps should be taken to provide adequate residential accommodation to the staff in the proximity of the Institutes as it would help in the creation of a proper atmosphere of

Grants to Institute are now made by U.G.C. as the Institute is deemed to be a "University" within the meaning of the U.G.C. Act. The Institute has sent a request to the U.G.C. for making a provision in the Third

study and research. A bo'der plan should be drawn up in this regard in the Third Plan. The Committee, in this connection, reiterate the following recommendation made in para 79 of their Tenth Report (Second Lok Sabha)—

"The Committee are of the opinion that in the interest of educational advancement of the country, the teaching staff should be provided with suitable residential accommodation in the neighbourhood of the institutions concerned that the facility of residential accommodation will also tend to reduce the problem of the flight of technical personnel."

Five Year Plan for staff quarters. This is under consideration of U.G.C.

[Min. of SRCA O.M. No. F. 12-53/60-T.I., dated 4.3.1961].

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C. 83rd Report

Sl. No. (as in the Appendix VII of the 83rd Report)	Reference to paragraph No. of the Report	Summary of recommendation/ conclusions	Reply of the Government
1	2	3	4
21	80	<p>The Committee consider that the proposal to set up a ten ton plant for the production of rice bran oil is sufficiently important to merit immediate implementation.</p> <p>(Further information called for)</p> <p>The latest position may please be stated.</p> <p>(L.S.S. O.M. No. 31-EC-II/60, dated 21-10-1961).</p>	<p>A scheme for setting up a pilot plant has been drawn up and approved by the Executive Council of the Central Food Technological Research Institute. The Scheme will now be considered by the Board of Scientific and Industrial Research at its next meeting in March, 1961.</p> <p>[C.S.I.R. letter No. 17/6/60-PC, dated 16-2-1961].</p> <p>The proposal for setting up a ten ton plant for the production of rice bran oil at the Central Food Technological Research Institute, Mysore was not pursued since the Ministry of</p>

The Committee regret to note that in spite of the controversy raging over a number of years about deleterious effects of Vanaspati on health, none of the research laboratories or institutes have yet conducted research and given their findings thereon. The Ministry should lose no time in bringing home to the concerned laboratories the urgent need of completing research in this respect and furnishing results early.

The Committee learn that about 1952 a material pink in colour for use as an additive to Vanaspati was found

Commerce & Industry appointed a Committee to set up pilot plants for the production of rice bran oil and also to provide incentives to manufacturers to take up production of rice bran oil. Four units with a production capacity of 60,000 tons in terms of rice bran per year have already been set up by private industries and 13 firms have also been granted industrial licences for a capacity of 1.90 lakh tons exclusively for extraction of oil from rice bran oil.

[C.S.I.R. letter No. 17/8/(21)/60-PC, dated 19-4-1962].

Regarding the first recommendation about the researches on the effect of Vanaspati on health, systematic researches were carried out during 1947—49 under the joint auspices of Ministry of Food & Agriculture and CSIR. These researches have shown that Vanaspati of melting point 37°C has no deleterious effect as compared with raw and refined groundnut oil. These researches were published by the CSIR in 2 volumes, entitled "Investigations on the Composition and Nutritive Value of Vanaspati", the first of which was published in 1952 and the

which was quite harmless. The Ministry of Food and Agriculture wanted the colouring material to be yellow. No reasons were forthcoming as to why pink colour was not acceptable. The reasons for abandoning the research were unaccountable. The Committee also find that as early as 1952, the Government of India in their resolution on the report of the Ghee Adulteration Committee had deferred their decision on the use of a visible colouring material as an additive to Vanaspati till the results of the various experiments which are being carried on in the country for finding out a suitable colouring medium for Vanaspati were available. Evidently the matter had not been seriously pursued thereafter. The Committee are of the opinion that there has been too long and inexplicable delay in enforcing the use of an additive to Vanaspati. While the use of a colourless additive may go to eliminate to some extent the deception practised in passing off as pure ghee, a product

second in 1958. Following these findings the melting point of all vanaspati produced for consumption in the country has been statutorily limited to 37°C. Fresh doubts associating consumption of Vanaspati with heart disease have arisen only recently and confirmatory work in this regard has been initiated by the Ministry of Health under the auspices of the Indian Council of Medical Research at various centres including the Nutrition Research Laboratories, Coonoor, since transferred to Hyderabad. These researches are still continuing.

As regards the second recommendation the Ministry of Food & Agriculture have intimated that perusal of the relevant records does not show any suggestion for the use of a pink colour having been received in that Ministry. The Director of Dairy Research, Bangalore had however suggested in 1952 the use of Ratanjot on which some work had been done by that Institute. The possibility of the use of Ratanjot as a colouring medium for Vanaspati

adulterated with Vanaspati, it cannot help common folk, who are unable to resort to the tests, from being deceived. They are of the view that either pink or some other colouring material equally good should be used as an additive to Vanaspati so that whether by itself or as an adulterant, Vanaspati could be identified easily by mere sight and all room for deception obviated.

had, however, been examined earlier by the Ghee Adulteration Committee appointed by the Ministry of Food & Agriculture in 1951, but was not recommended by it, partly because of its toxicity (on the basis of the findings reported by the Indian Veterinary Research Institute, Izatnagar) and partly because of its reported non-availability in sufficient quantity. A fresh effort has recently been made to intensify the researches for finding a suitable colour for Vanaspati. A Co-ordinating Committee which includes, *inter-alia*, the Directors of the following laboratories has been set up by the Ministry of Food & Agriculture:—

- (i) The National Chemical Laboratory, Poona.
- (ii) The Central Drug Research Institute, Lucknow.
- (iii) The Central Food Technological Research Institute, Mysore.

The question of colourisation of Vanaspati has three aspects: (a) the nutritional and health aspect; (b) the administrative aspect, i.e. whether Vanaspati should be coloured or not, and (c) actual finding out of

a suitable colour. As regards : (a) it is the Ministry of Health who are concerned and they are taking necessary action (b) is for the Ministry of Food & Agriculture. The C.S.I.R. come into the picture only for aspect (c) and in this matter a colour has to be found out which can satisfy certain essential conditions, which are as follows:—

- (a) it should be stable under frying temperatures;
- (b) it should not be washable with acid or alkali;
- (c) it should not be removable by filtration or absorption;
- (d) it should have a pleasing colour; and
- (e) it should have absolutely no toxic effects.

The difficulty lies in discovering a colour which will satisfy these conditions. This is obvious from the fact that all colours fall under two categories; colours from natural sources, especially vegetable and

synthetic colours. It is generally well known that all natural colours of vegetable origin can be easily removed by simple known methods and almost all synthetic colours, which are of coal tar origin, are chemicals and are in varying degrees toxic. However, efforts to find out a suitable colour is continuing. Recently, the C.F.T.R.I. has suggested to the Co-ordinating Committee set up by the Ministry of Food & Agriculture, alcoholic extract from turmeric and this is under consideration of that Committee.

[C.S.I.R. letter No. 17/6/60-PC, dated 16-2-61].

(Further information called for by the Committee).

The latest position in respect of the research being undertaken by the Ministry of Health on the effect of Vanaspati on health and by the CSIR in finding a suitable colour, may please be stated.

[L.S.S. O.M. No, 31-EC, 11/60 dated 21.10.1961].

Effects of Vanaspati on Human Health

A. Research work done at the Nutrition Research Laboratory, Hyderabad, and the Indian Institute of Science, Bangalore, on effects of Vanaspati on human health has revealed the following results so far:

- (1) The intake of hydrogenated vegetable fats at moderate or low levels (10 to 15 per cent of total calories in the diet) is associated with no significant

increase in serum cholesterol levels.

(2) Consumed in high amounts (i.e. supplying nearly 40% of the total calories in the diet) hydrogenated vegetable fats tend to increase serum cholesterol concentration significantly.

(3) If, however, 20 to 30 per cent of the total hydrogenated fat intake is replaced by unhydrogenated vegetable oils which are rich in polyunsaturated fatty acids, the increase in serum cholesterol brought about is considerably less.

(4) Distribution of hydrogenated vegetable fat equally in all the meals of the day results in considerably less increase in serum cholesterol than consuming the same amount all at one sitting.

(5) There is at present no definite evidence to show that consumption of high amounts of

hydrogenated vegetable fats alone, can produce coronary heart disease. All that can be said is that such a high intake may produce one of the factors known to be associated with coronary heart disease.

B. The Indian Council of Medical Research is of the following opinion:

(1) There is no definite proof of the product being harmful to the health of the people. Comparative studies carried out in the country with Vanaspati of melting point 37°C, raw groundnut oil, refined groundnut oil and ghee failed to reveal any significant differences in the metabolism of the nutrients like calcium, phosphorus and protein. Although slight gains in weight were observed on the group fed with ghee, these results are somewhat variable.

(2) In the case of Vanaspati, which is a saturated fat, it has been found in recent years that its consumption would tend to elevate blood cholesterol, a factor which is claimed to be associated with greater incidence of

coronary heart disease. There is, however, no incontrovertible evidence that raised cholesterol would lead to heart disease. In this respect, ghee, which is also a saturated fat, is certainly not different from Vanaspati. Therefore, the hypothesis that non-availability of pure ghee is having adverse effect on public health seems untenable and is not based on any scientific evidence.

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Finding of a suitable colouring Agent for Vanaspati for detection of Adulteration of ghee with Vanaspati:

Nearly a dozen colouring agents were suggested to the Experts Committee appointed by the Ministry of Food and Agriculture (Directorate of Sugar and Vanaspati) for adoption, but none of these conformed to the specifications prescribed by the Committee. The Committee has so far considered (i) alchohol extract from Turmeric and (ii) Ratanjot

The Committee suggest that suitable steps should be taken jointly by the Ministries of Scientific Research and Cultural Affairs and Health to remove the medical practitioners' prejudice to the use of indigenous drugs.

root-dye as suitable colouring agents which could be used for colouring Vanaspati. But the former was found to be washable by known chemical methods and the latter was reported to be toxic.

The Committee has directed that further research work should be conducted on (i) making the alcohol extract of Turmeric a fast colour; and (ii) toxicity trials on Ratanjot root-dye. The work on both is continuing.

[C.S.I.R. letter No. 17/8/22[60-PC, dated 27-9-1962].

The findings of the Estimates Committee that the indigenous substitutes for imported drugs were not being utilised in the country, appear to be based on misapprehension of the actual situation obtaining in this matter. The policy of the Government is to ban imports of such drugs which are being produced indigenously. Except in respect of basic raw materials and intermediaries required for the production of drugs, finished products, except in very few cases, are not being allowed to be imported. As such, the practitioner does not have much of a

choice between the use of indigenous and imported drugs.

It is, however, true that out of preparations being produced indigenously, houses with long established reputation, like Parke Davis, Glaxo, etc. enjoy a certain amount of popularity among the doctors. How far it would be appropriate to take any action to ask the medical profession to use by choice, preparations put up by purely indigenous manufacturers, (i.e. manufacturer working without foreign collaboration) is a matter which will be open to question, keeping in view that manufacturing houses with participation of foreign capital and know-how are there with full support and cognizance of the Government. Indigenous manufacturers can only compete with foreign firms if the quality of their products is equally good, their prices competitive and their salesmanship of the same high order. In such matters the trade may be trusted to take care of itself.

The Committee suggest that a list of indigenous drugs standardised and tested may be prepared by the Institute and furnished to all Government and local dispensaries/hospitals. Government may issue instructions to the authorities concerned that indigenous drugs which have been found to be effective substitutes for imported drugs should be prescribed by Government hospitals/dispensaries.

[Min. of S.R. & C.A. O.M. No. 13(28)/
59-SRI, dated 31-1-1962].

The Indian Pharmacopoeia at present includes Monographs on about twenty-five indigenous drugs. Work on ten Vegetable Crude drugs has also been undertaken by the Indian Pharmacopoeia Committee and the drugs are being investigated at five different laboratories in the country with a view to establish Chemical and Pharmacognostical standards for the same. Standardisation and testing of indigenous drugs used in ancient systems of medicine are time consuming factors. Work on these aspects has been given priority in the Central Drugs Research Institute. As and when there is sufficient data to incorporate such drugs, attempts will be made to publish a separate list or monograph.

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Since the majority of preparations available in the market are indigenously manufactured in the sense that the formulating part is carried out in this country, the preparation of a list of drugs that should be recommended to be used in preference to imported drugs as suggested by

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the Estimates Committee, does not
appear to be necessary.

(Min. of SR &CA O.M. No. 13 (28) 59-
SRI, dated 31.1.1962).

CHAPTER IV
REPLIES OF GOVERNMENT THAT HAVE NOT BEEN ACCEPTED BY THE COMMITTEE
A. 76th Report

Sl. No. (as in the Appendix of the 76th Report)	Reference to Paragraph No. of the Report	Summary of recommendation/ conclusion	Reply of the Government	Comments of the Committee
1	2	3	4	5
1	14	The Committee are of the view that it would be conducive to the flow of fresh ideas if the constitution of the Board of Scientific & Industrial Research provides for the retirement of one-third of the members every year, their places being filled-up by new nominations. In proper cases a retiring member or members may also be renominated. The Committee suggest that the new Board may be constituted on the above basis.	<p>The Bye-laws of the C. S. I. R. provide as follows in regard to the composition of the Board of Scientific and Industrial Research:—</p> <p>“Bye-law 52: The Board shall consist of members representing science, engineering, industry and appropriate Departments of the Government of India and such others as may be nominated by the Government of India.</p>	Please see para 2 of Chapter I.

The Committee consider that as in the case of the Board of Scientific and Industrial Research, the infusion of fresh ideas in the deliberations of the Research Committees is essential and this should be secured by constituting the Committees in the same manner as has been suggested in the case of the Board of Scientific and Industrial Research.

Representation of Government Departments and sister research organisations, which are concerned, is more or less fixed and similar is the case with *ex-officio* members. The element of change largely relates to the representatives of science and industry. In actual practice, therefore, even if the principle of 1/3rd membership is laid down, it will be only a case of re-nomination of *ex-officio* members and of representatives of Government Departments and sister research organisations concerned: the change will be mostly among the remaining members.

The present Bye-law does not place any restriction on the composition of the Board when re-constituted at the end of a period of three years and at every reconstitution, it is not binding to limit the change to 1/3rd, as would be the case if the change is made every year.

The formal introduction of the system of 1/3rd members retiring after every year will require an amend-

ment of the Bye-law referred to, which for the reasons stated above may not be necessary.

Generally speaking the position with regard to the Research Committee is the same as in the case of the B. S. I. R. Unlike the B. S. I. R. however these are not Standing Committees and the entire membership, except the ex-officio membership of the D. G. S. I. R., is open to change. These Committees can be reconstituted, whenever necessary, and new members added or substituted for existing members as the occasion may arise. Depending upon the changing emphasis and the development of various disciplines of science, our practice has been to abolish committees, bring into being new committees or reconstitute committees with altered terms of reference. Any rigid rule for changing only a given number of members annually may not therefore be necessary.

Apart from the above, in the case of both the B. S. I. R. and the Research Committees, a change of members, 1/3rd every year, would involve considerable amount of administrative work. It is felt that

the existing procedure ensures continuity on the one hand and on the other does not prevent making changes in the membership periodically, as and when needed.

[C.S.J.R. letter No. 17/6/60-PC, dated 16-2-1961].

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29 The Committee suggest that reasons for the wide fluctuations in the percentage of non-technical administrative staff to total sanctioned strength of the various National Laboratories may be analysed in detail and steps taken to reduce this percentage.

As indicated in the reply to para 41 the variation between the strength of administrative staff between different laboratories is due to the fact that some are in the planning stage, while several others are still in the process of development. In the initial stages of planning and development the administrative cost tends to be somewhat high and subject to fluctuation. There is bound to be some variation in the proportion of administrative staff to other staff in a Laboratory at the various stages of development and also as between one laboratory and another depending upon the size of the laboratory; whether a laboratory is big or small certain essential ministerial establishment has to be provided. It has been decided

The Committee feel that belated as is the appointment of the departmental Reviewing Committee, the Ministry could place a voluntary ban on further recruitment of the non-technical administrative staff till the departmental Committee had finished its work and submitted its report.

to review the present strength of administrative staff etc.

[C. S. I. R. letter No. 17/6/60-PC, dated 13-1-1961.]

(further information called for by the Committee).

(i) The economies effected as a result of the review of the present strength of administrative staff etc., if already carried out, may please be stated.

(ii) Also information regarding non-technical administrative posts in Class I created or upgraded during the last two years may please be furnished laboratory-wise.

(L.S.S. O.M. No. 27-EC-II/60, dated 20-4-1961).

(i) A Committee with Secretary, C. S. I. R. as Chairman, A. F. A. and a Technical Officer as members has been constituted to review the strength of house keeping Sections of the C. S. I. R. and the Laboratories.

(ii) The following non-technical/administrative posts in Class I have been created with effect from 1st March, 1959:

1. Deputy Secretary (1) O. & M. & Vigilance (Temporary).
2. Officer on Special Duty (National Register) (1) (Permanent).
3. Administrative officer (Grade I)—(6):

One post each for—

1. Central Mechanical Engineering Research Institute, Durgapur.
2. Indian Institute for-Biochemistry & Experimental Medicine, Calcutta.
3. Regional Research laboratory, Jorhat.

Temporary.

4. National Aeronautical Laboratory, Bangalore.

5. Indian Institute of Petroleum, Dehra Dun.

6. Central Public Health Engineering Research Institute, Nagpur.

Administrative Officer(Grade II)—
(3).

One post each for—

1. Birla Industrial & Technological Museum, Calcutta.

2. Central Indian Medicinal Plants Organization, New Delhi.

Temporary.

3. Regional Research Laboratory, Jammu.

Permanent

[C.S.I.R. letter No. 17/6/60-PC, dated 21-9-1961].

The Committee consider that it would be helpful if each National Laboratory undertakes an analysis of all the contacts it has made with industry with a view to ascertaining how contacts are initiated as also

The recommendation has been conveyed to the Directors for undertaking an analysis as proposed. The matter will be examined further in due course in the light of reports received.

A constant study may be made of the effectiveness of the various steps taken for developing closer contacts

the effectiveness or otherwise of the methods of contacts. In the light of such analysis, necessary action may be taken to remove any weaknesses that are noticed in the present system.

(Further information called for by the Committee).

Please state if the replies of the Directors of National Laboratories in respect of this recommendation have since been received and if so what further action in the matter has been taken.

(L.S.S. O.M. No. 27-EC. II/60 dated 20-4-1961).

(C.S.I.R. letter No. 17/6/60-PC, dated 13-1-1961).

with the industry and in the light thereof modifications made as necessary.

The question of achieving greater and effective collaboration with industry and in educating people in the work done by the laboratories was discussed at length at the Conference of Directors which was held in June, 1961 at the CFTRI, Mysore. The following is an extract from the proceedings of the Conference:

"The process of education was bound to be a slow one, but consistent effort in this direction was necessary, to dispel ill-informed opinions and criticisms in some quarters. Many of the Directors present spoke on this question. Their feeling was that, during the last 3-4 years, very definite progress had been made and there was increasing realization of the laboratories' role in the industrial development of the country. They

stated that both public and private industries as well as national bodies entrusted with the planning of development programmes were welcome to visit the laboratories and see for themselves the work carried out therein. The Directors also voiced a complaint that in drawing up development plans and projects, they were not kept in the picture as they should be, though they were being gradually consulted.

As an immediate step towards bringing the developmental work of the laboratories to the notice of the public and industry, both in the public and the private sector, it was decided that each laboratory should bring out a bulletin periodically on the lines of the C.F.R.I. bulletin. Such a publication should high-light the work done and point out the avenues in which industry can derive expert advice and assistance from the laboratories."

It may be recalled that the following steps are already being taken to develop closer contacts with industry:—

- (i) having personal discussions with representatives of the industry on their problems;
- (ii) holding seminars and symposia on important industrial subjects to which representatives of the industry are specially invited; they contribute technical papers and take part in discussions;
- (iii) sending out workers of the laboratories to the factories to study their technical problems and give advice on the spot;
- (iv) associating closely with technical bodies such as I.S.I. and scientific societies on which industries are also represented;
- (v) participating in industrial and scientific exhibitions;
- (vi) publishing periodically technical journals embodying the results of researches carried out at National Laboratories. These journals are generally subscribed to by the industry who avail themselves of

the various processes developed by the laboratories to improve the quality of their products and to increase productivity;

(vii) channelising 'patented' as well as 'non-patented' processes to industry through N.R.D.C. and the Liaison Unit of the Council.

(viii) conducting of practical demonstrations in different sectors of the industry by extension service teams;

(ix) Directors and Senior Officers of the laboratories visiting industrial centres and representatives of the industry visiting laboratories;

(x) responding to various enquiries on technical subjects received from industry and suggesting solutions to their problems; and

(xi) carrying out investigations on ad-hoc basis on behalf of industry and supplying the technical know-how to them.

[C.S.I.R. letter No. 17/8/60-PC, dated 21-9-1961.]

- 94 The Committee suggest that the reasons for poor receipts on account of sale of publications in respect of various National Laboratories other than C.G.C.R.I. and I.I.B.E.M. may be carefully investigated and suitable steps taken to step up the income from this source.

The matter has been carefully examined and the views of the Directors have also been obtained. In the case of the C.G.C.R.I. & I.I.B.E.M. the figures which have been submitted have not been arrived at on the same basis as followed in the case of other laboratories/Institutes. The cost involved by way of staff etc. has not been taken into account in those cases and the value of the journals received in exchange has been added on the income side. Hence the apparent discrepancy between the two sets of figures. Every laboratory/Instt. receives publications in exchange from sister organisations inside the country and from abroad and their value in terms of money would add a considerable amount on the income side. For example in the case of CSIR's Publications Directorate, over 400 journals are received in exchange and their value is quite considerable. But in arriving at the figures submitted to the Estimates Committee this value was not taken into account.

One of the fundamental functions assigned to the Council of Scientific and Industrial Research is the

The method of calculating the receipt and expenditure on account of the publication is apparently not uniform. A uniform and accepted method of showing the receipt on this account may be followed by all the laboratories. The receipt and the expenditure may be shown in the annual reports.

dissemination of scientific information and the most recognised form of dissemination of scientific information is through publications. These publications fall into three categories:—

- (a) those for disseminating information on research results for the information of the people at large in non-technical language;
- (b) scientific papers; and
- (c) those directed towards industry to assist in industrial development.

Publications under (a) are mostly issued free, particularly in the initial stages, so as to ensure that the benefit of research results capable of being applied in practice reach as wide a circle of the public as possible. Many Laboratories have therefore no priced publications at present. Similarly, publications under (b) are mostly issued to scientific workers and other research

organisations inside and outside the country and, as stated above, they bring in return valuable publications of those organisations. It is only publications falling under (c) in which advertisements are also included that can be expected to yield some return or at any rate be self-supporting.

It is an accepted fact in scientific circles that no scientific journal is self-supporting, if the cost of the staff employed and all the other production costs are taken into consideration. Even in advanced countries like U.S.A. and U.K., journals are subsidised by membership fees and are distributed only to the members of the Society or organisation running the Journal.

(C.S.I.R. letter No. 17/6/60-P&C, dated 28-3-1961).

B. 78th Report

S. No. (as in the Appendix XII of the 78th Report)	Reference to Paragraph No. of the Report	Summary of the recommendation/ conclusion	Reply of the Government	Comments of the Committee
1	2	3	4	5
1	6	While it is a fact that the number of receipts dealt with by different sections of the S.R. Wing has steadily increased during the period 1956 to 1958, the Committee are not sure whether the creation of one additional section fully justifies the creation of two additional posts of Under Secretaries. The Committee suggest that the Special Reorganisation Unit should examine the feasibility of reducing the number of Under Secretaries in the Wing from four to three by suitable rationalisation and allocation of work.	<p>The recommendation will be considered by the Special Reorganisation Unit when they take up the examination of the Division in about six months time.</p> <p>[Ministry of S.R. & C.A. O.M. No. D. 1/61/EU dated 23-1-1961).</p> <p>The feasibility of reducing the number of posts of Under Secretaries in the Scientific Research Wing of the Ministry as recommended by the Estimates Committee is being examined by the Study Team of the Special Reorganisation Unit. The Team's report is awaited.</p>	The Committee hope that the S.R.U. will finalise the report at an early date and in the light thereof action would be taken expeditiously to effect economy.

[Ministry of S.R. & C.A. O.M. No. F. 1(6)59-EU dated 15-2-1962].

(Further information called for by the Committee).

The latest position in the matter may please be intimated.
(L.S.S. O.M. No. 29-EC.II/60, dated 1-5-1962).

There has been no change in the position as already intimated vide the Ministry's O.M. of even No. dated 22-5-1962. The Report from the S.R.U. is still awaited.

[Ministry of S.R. & C.A. O.M. No. F. 1(6)59 dt. 1|2-11-62 and D.O. No. F. 6(21)/62-Genl. Vol. III dated 5/6-12-62].

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44 The Committee suggest that the question of developing the National Institute of Sciences of India on the lines of the Royal Society of the U.K. may be considered by the Ministry.

(Further information called for by the Committee).

The result of examination of the question may please be intimated.

(L.S.S. O.M. No. 29-EC.II/60, dated 1-5-1962).

Noted.

[Min. of S.R. & C.A. O.M. No. 15(76)/60-S.R.II, dated 28-2-62].

The matter is under consideration of Government.

[Ministry of S.R. & C.A. O.M. No. 15(76)/60-S.R.II, dated 17/22-8-1962].

The Committee hope that Government will take early decision in the matter.

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70 The Committee suggest that an early decision should be taken on the question of revising the ratio of apportionment of the income from premia and royalties between the

The Board of Directors of the Corporation have since decided that proposals for revision of apportionment of income from premia and royalties on the basis of 50% to

The Committee note that the proposals for apportionment of income from premia and royalties on the basis

National Research Development Corporation and the research organisations and while so doing the objective of making the Corporation self-sufficient may be kept in view.

(Further information called for by the Committee).

Please state the result of consultation with the Research Organisations on the proposals for revision of apportionment of income from premia and royalties. Also please state if the objective of making the Corporation self-sufficient has been kept in view while proposing the revision of apportionment of income.

(L.S.S. O.M. No. 29-EC.II/60, dated 1-5-1962).

Corporation and 50% to Research Organisations with effect from the 1st April 1961 be made and that the ratio may be subject to further review at the end of one year. Research organisations, which will be affected by the revision, are being consulted.

[Ministry of S.R. & C.A. O.M. No. F. 13(29)/59-S.R.I dated 18/19-5-1961].

The matter was taken up with the various Ministries of the Government of India. Replies from Ministries of Works, Housing & Supply, Mines & Fuel and the Department of Atomic Energy are still awaited. The Ministries of Railways, Food & Agriculture (Dept. of Agriculture), Defence and Information & Broadcasting have not agreed to the proposed revision of apportionment of income from premia and royalties and they have been approached to reconsider their decision. The object in proposing the revision of apportionment of income from premia and royalties

of 50% to Corporation and 50% to Research Organisations has been under the active consideration of Government since April, 1961, but no decision has yet been taken. The Committee would urge Government to expedite decision in the matter.

to 50:50 instead of National Research Development Corporation's present share of 30% is to enable the Corporation to meet its day to day expenditure and to make it self-sufficient.

[Ministry of S.R. & C.A. O.M. No. 13(29)/59-S.R.I. dated 25-7-1962].

The recommendation of the Estimates Committee is under consideration of the Government.

[Ministry of S.R. & C.A. O.M. No. F. 12-53/60-T.I. dated 4-3-1961].

Government in consultation with the University Grants Commission are exploring the best method of granting autonomy to the School with power to confer their own degrees.

[Ministry of S.R. & C.A. O.M. No. F. 12-60/62-T.I. dated 23/24-10-1962].

Attention is invited to the observations communicated by the Ministry on para 12 of the Estimates Committee 15th Report (Second

The Committee hope that Government will take early decision in the matter.

Please see para 3 of Chapter I.

31 80 The Committee suggest that the question of giving autonomous status to the Indian School of Mines & Applied Geology with power to award its own degree may be examined by the Ministry.

(Further information called for by the Committee).

The decision, if any, reached in the matter may please be intimated.

(L.S.S. O.M. No. 29-EC.II/60, dated 1-5-1962).

43 99 The strength of Class III and IV staff in the Indian Institute of Technology is on the high side. The Committee invite attention in this con-

nection to the following recommendation made by them in para 12 of their 15th Report (Second Lok Sabha):—

“The Committee feel that the increase more especially in the category of ‘Other supporting staff’ was disproportionate to the increase in the number of students—In comparison with the standard laid down by the Sarkar Committee, the strength of staff in the Institute is excessive. The Committee suggest that the entire position should be carefully reviewed, so as to reduce the strength of staff to actual requirements or alternatively to increase the admission of students to the original figure contemplated by the Sarkar Committee so that *per capita* expenditure can be brought down.”

The Committee suggest that so far as Class III and IV staff is concerned,

Lok Sabha). As stated therein, a large number of Class IV staff has become necessary for security, maintenance and municipal work of the campus of the Institute. The norms adopted for creation of Class III and Class IV posts are those prescribed for Central Government Departments. In the opinion of the Institute the staff sanctioned is not on the high side. The Institute would, however, be prepared to get the job-analysis of the work done if Government would make the necessary arrangements for the purpose.

[Ministry of S.R. & C.A. O.M. No. F. 12-53/60-T.I dated 4-3-1961].

a job analysis of the work may be done with a view to effect economies.

(Further information called for by the Committee).

Please state the arrangement, if any, made to get the job-analysis of the work done by Class IV staff employed in the Institute.

(L.S.S. O.M. No. 29-EC.II/60, dated 1-5-1962).

The Technical Division of the Ministry has stated that they are examining the best way of carrying out the job analysis of Class III and Class IV staff employed in the Higher Technological Institutes in consultation with Work Study Unit set up in the Ministry.

[Ministry of S.R. & C.A. D.O. No. F. 6(21)/62-Genl. Vol. III dated 5/6-12-1962].

It has been decided to entrust the job-analysis in question to an officer of the Institute itself. The Institute has accordingly been requested to depute immediately an officer to undergo necessary preliminary training for about six weeks with the Special Reorganisation Unit of Ministry of Finance and work study unit of this Ministry.

Further progress will be intimated to the Lok Sabha Secretariat from time to time.

[Ministry of S.R. & C.A. O.M. No. 24/30/59/T.6 Vol. III dated 24-12-1962].

C. 83rd Report

S. No. (as in Appendix VII of the 83rd Report)	Reference to Paragraph No. of the Report	Summary of the recommendation/ conclusion	Reply of the Government	Remarks
1	2	3	4	5
58	116	The Committee suggest that the schemes to bring out a popular science digest and series of popular pamphlets on science in Hindi and English should be finalised and implemented expeditiously. The question of bringing out such publications in the regional languages also with the co-operation of the States may be taken up early.	After careful consideration it has been decided that the Council of Scientific and Industrial Research will be the most appropriate agency for dealing with a project of this nature. The Council has a Publications Directorate but it has not been possible for that Directorate to undertake the project under consideration because they have been dealing mainly with research publications. It is, however, understood that the Directorate is contemplating expansion of its activities to cover publications for popularising scientific subjects amongst	The reply is not to the point. The Estimates Committee have already taken note of the decision referred to in the reply in their report. What they wanted was expedition in bringing out such a digest. The Committee urge that the scheme should be implemented early.

the general public. When an appropriate Section is set up in the Directorate, the project referred to in the recommendation No. 58 of the Report will be taken up for consideration.

[Ministry of S.R. & C.A. D.O. No. F.
7-6/62-P&B dated the 21st/23rd
May, 1962].

New Delhi;
March 6, 1963/Phalguna 18, 1884 (Saka).

H. C. DASAPPA,
Chairman,
Estimates Committee.

APPENDIX I

(Vide S. No. 12, 76th Report, Chapter II)

List of newspapers in which advertisements for all India posts under CSIS are issued.

- 1. Indian Express, Delhi/Bombay/
Madurai/Vijayadawa/Chittoor.**
- 2. Assam Tribune, Gauhati.**
- 3. The Indian Nation, Patna.**
- 4. The Times of India, Bombay/
Delhi.**
- 5. The Hindu, Madras.**
- 6. The Mail, Madras.**
- 7. Deccan Herald, Bangalore.**
- 8. The Tribune, Ambala.**
- 9. The Hindustan Times, Delhi.**
- 10. The Statesman, Delhi/Calcutta.**
- 11. The National Herald, Lucknow.**
- 12. The Pioneer, Lucknow.**
- 13. The Leader, Allahabad.**
- 14. The Northern India Patrika,
Lucknow.**
- 15. Amrit Bazar Patrika, Calcutta.**
- 16. Hindustan Standard, Calcutta.**

APPENDIX II

(Vide S. No. 27, 76th Report, Chapter II)

Names of the Executive Councils and other Committees of CSIR on which representatives of the Atomic Energy Deptt. are members.

1. Executive Councils:

Names of representatives

- | | |
|-----------------------------|--|
| (i) N.P.L., New Delhi. | Dr. H. J. Bhabha, Secy. Deptt. of Atomic Energy, Govt. of India. |
| (ii) N.C.L., Poona. | Dr. Jagdish Shanker, Principal Research Officer, Atomic Energy Establishment, Trombay. |
| (iii) C.E.C.R.I., Karaikudi | Do. |
| (iv) C.G.C.R.I., Calcutta. | Representative of the Atomic Energy Estt. |
| (v) C.E.E.R.I., Pilani. | Dr. D. Y. Phadke, Atomic Energy Estt., Bombay. |
| (vi) N.M.L., Jamshedpur. | Prof. Brahm Prakash, Atomic Energy, Estt. |

2. Research Committees:

- | | |
|--|--|
| (i) Geological & Mineralogical Research Committee. | Dr. D. N. Wadia, Geological Adviser to Deptt. of Atomic Energy, New Delhi. |
| (ii) Metals Research Committee. | Prof. Brahm Prakash, Atomic Energy Estt., Metallurgical Divn., Bombay. |
| (iii) Radio Research Committee. | Dr. A. S. Rao, Deptt. of Atomic Energy. |

3. Other Committees:

- | | |
|--|---|
| (i) Committee for utilisation of Solar Energy. | Dr. R. Ramanna, Head Nuclear Physics Divn., Atomic Energy Estt., Trombay. |
| (ii) Editorial Board, Journal of Scientific & Industrial Research. | Dr. P. K. Ghosh, Atomic Energy Deptt., Mineral Divn. |
-

Names of Committees of Atomic Energy Deptt. on which representatives of CSIR are members.

Names of representative

Name of Committee

1. Dr. K. S. Krishnan, Director, Board of Research in Nuclear Science, NPL, New Delhi. Deptt. of Atomic Energy.
 2. Dr. B. R. Nijhawan, Director, Metallurgy Advisory Committee, NML, Jamshedpur. Atomic Energy Deptt.
 3. Dr. K. Venkataraman, Director, Board of Nuclear Science, NCL, Poona. Atomic Energy Deptt.
 4. Dr. A. B. Biswas, Asstt. Director, Chemistry Advisory Committee, NCL, Poona. Atomic Energy Deptt.
-

APPENDIX III

(Vide S. No. 40, 76th Report, Chapter II).

List of schemes/processes executed by National Laboratories in collaboration with industry.

S. No.	Name of Scheme/Process	Name of the party.
(1)	<i>Central Food Technological Research Institute, Mysore.</i>	
1.	Chemistry and Technology of Coffee	Coffee Board, Bangalore.
2.	Chemistry and Technology of Tea	Tea Board, Calcutta.
3.	Production of infant food in cooperation with Kaira Milk Union, Anand.	Kaira Milk Union, Anand.
4.	Production of Multi-purpose food—setting up of a new unit at Coimbatore.	PSG Group of Industrial concerns and charities, Coimbatore.
(2)	<i>National Metallurgical Laboratory, Jamshedpur.</i>	
1.	Development of Tinless Bronze.	Railway Board.
2.	Development of controlled friction material with a co-efficient of friction of 0.10 to 0.12 which should not exceed 0.16 in service.	Railway Board.
3.	Production of magnesium by electrolytic method from magnesium chloride.	M/s. Tata Chemical Ltd., Mithapur.
4.	Studies on the Beneficiation of iron ores from TISCO.	Tata Iron & Steel Co.
5.	Semi-pilot plant study on the beneficiation of ferruginous manganese ore from Joda West and proposal for a plant of capacity 600 ton/day employing the low temperature magnetising reduction process.	Tata Iron & Steel Co.
6.	Recovery of Ferro-manganese from Joda Electric furnace slag.	Tata Iron & Steel Co.
7.	Beneficiation of phosphate rock employing batch as well as pilot plan test.	Tata Iron & Steel Co.

S. No.	Name of scheme/process.	Name of the party.
8.	The use of beneficiated apatite for the enrichment of soluble P205 content of duplex slag for the production of ferro-phosphorous and thermal phosphate.	Tata Iron & Steel Co.
9.	Semi-pilot plant studies on the beneficiation of ferruginous manganese ore and a proposal for putting up a beneficiation plant of capacity 100 ton/day.	M/s. Rungta & Sons, Chaibassa.
10.	Semi-pilot plant studies on the beneficiation of ferruginous manganese ore.	M/s. Orissa Manganese Minerals (P) Ltd.
11.	Study on moulding characteristics of foundry moulding sands and bonding clays from different localities.	M/s. Tata Engineering Locomotive Co.
12.	Study on moulding characteristics of Brahmani river sand from Rourkela, Orissa.	M/s. Hindustan Steel Ltd, Rourkela.
13.	Study on moulding characteristics of Durgapur sand.	M/s. Hindustan Steel Ltd, Durgapur.
14.	Corrosion problems encountered in manufacture of D.D.T.	Hindustan Insecticide Ltd.
15.	Corrosion problem encountered in the fusion of caustic soda in cast iron pots.	Delhi Cloth Mills.
16.	Detailed metallurgical investigation on the 'USHA' industrial Sewing machine and 'Singer' industrial machine.	M/s. Jay Engg. Works, Calcutta.
17.	Developing of Nickel plating salts.	M/s. Jay Engg. Works, Calcutta.
18.	Recovery of Precious Metal from Gold and Silver Dresses.	Andheri Metal Refinery and Foundry, Bombay.
19.	Causes of development of Brown spots on Aluminium circles.	Aluminium Corpn. of India, Calcutta.
20.	Development of flux for Union melt welding.	Associated Cement Co. Allahabad.

S.No.	Name of scheme/process.	Name of the party.
(3) Regional Research Laboratory, Hyderabad.		
1.	Preparation of calcium gluconate by fermentation:	Biological & Synthetic products, Ltd. Bombay.
2.	Manufacture of 8-hydroxy-quinoline (oxine).	Biological Products Private Ltd. Bombay.
3.	Removal of soluble silica from spent alkali of paper mills.	Orient Paper Mills Ltd. Brajrajnagar.
4.	Exposure tests of composite aluminium primers and lead and other conventional primers.	Indian Aluminium Co. Ltd., Calcutta.
5.	Utilisation of barytes for the preparation of barium chemicals and pigments.	Bio-Pharma Laboratories.
6.	Microbiological Production of gluconic acid and its salts from suitable carbo-hydrate materials.	Biological Prod. (P) Ltd., Hyderabad.
(4) Central Salt Research Institute, Bhavnagar.		
1.	Sodium sulphate from Khari salt from Bihar.	Indian Chemical Supply Co. Manahar, Muzaffarpur.
2.	Purification of marine Gypsum.	United Mineral and Chemical Ind., Bhavnagar.
(5) National Chemical Laboratory, Poona.		
1.	Bor acid.	M/s. Amar Dye Chem. Ltd., Bombay.
2.	Ethylene Oxide.	M/s. Hico Ltd., Bombay.
3.	Improvements in and relating to the extraction of CSL.	M/s. Pierce Leslie & Co. Ltd., Kozikode.
4.	Lac dye Research Scheme.	Indian Lac. Cess Cte.
(6) Central Drug Research Institute, Lucknow.		
1.	Unichem Research Fellowship.	Unichem Lab., Bombay.
(7) Central Road Research Institute, New Delhi		
1.	Design of suitable road & streets for H.E.P.L.	Heavy Electricals (P) Ltd., Bhopal.
2.	Economic specification for road construction in Durgapur Steel Project.	Hindustan Steel (P) Ltd.,

APPENDIX IV

(vide S. No. 35, 76th Report, Chapter III).

Particulars of scientific or other post-doctoral research work taken up by the Research Fellows who left before the expiry of the term of the award during the last two years.

Sl. No.	Name	Particulars of scientific or other post-doctoral research work taken up by the Research Fellow, after resigning the fellowships together with reasons.
Council of Scientific & Industrial Research:		
1.	Shri R. J. Pandya.	Proceeded abroad for further studies in Chemical Engineering.
2.	Shri S. K. Arora.	Finished the experimental work for Ph. D. Degree.
3.	Shri R. N. Kapil.	Appointed as lecturer.
4.	Shri S. C. Saxena.	Proceeded abroad for taking up assignment of visiting Asstt. Prof. in Mathematics in Atlanta University (U.S.A.).
5.	Shri Vidya Bhushan.	Appointed as Physicist in Safdarjung Hospital.
6.	Shri M. S. Bhatia.	Awarded Scholarship in the U.S.A.
7.	Shri G. K. Tandon.	Awarded Scholarship in the U.S.A.
8.	Shri Hardev Singh.	Appointed as Lecturer.
9.	Shri S. C. Srivastava.	Proceeded abroad on U.S.S.R. Govt. Scholarship.
10.	Shri S. L. Mukherjee.	Awarded Research Officership in Indian Association for Cultivation of Science, Calcutta.
11.	Shri A. K. Barua.	Proceeded abroad for higher studies (Research Associate in Chemistry, Brown University Providence, R.I. U.S.A.).
12.	Shri N. Narasimha Rao.	Awarded Research Fellowship by the U.G.C.
13.	Shri S. Rajappa.	Appointed as Lecturer.

Sl. No.	Name	Particulars of scientific or other post-doctoral research work taken up by the Research Fellows after resigning the fellowships together with reasons.
14. Shri S. G. Kshir Sagar.	Appointed in the Atomic Energy Establishment, Trombay.	
15. Shri S. C. Narula.	Proceeded abroad for higher studies and secured admission at Imperial College of Science & Technology, London.	
16. Shri C. L. Mehta.	Proceeded abroad for continuation of research programme at University of Rochester, U.S.A.	
17. Shri P. Krishnamurthy.	Appointed as Chemist Apprentice by the Neyveli Lignite Corporation.	
18. Shri T. Satyanarayana.	Do.	
19. Dr. T. R. Thyagarajan.	Proceeded abroad for higher studies (offered post-doctoral fellowship by University of Cornell, ITHACA (N.Y.) .	
20. Shri T. A. Hariharan.	Appointed as Lecturer in Indian Institute of Technology, Madras.	
21. Shri C. A. Sastry.	Appointed as J.S.O. in the CPHERI, Nagpur.	
22. Suri K. Vedam.	Appointed as Research Officer in Atomic Energy Establishment, Trombay.	
23. Shri B. P. Sangal.	Proceeded abroad for higher studies in Civil Engineering in Canada.	
24. Shri P. R. Sundarsen.	Proceeded abroad for higher studies; Awarded post-doctoral fellowship by University of Illinois.	
25. Shri A. S. Mukherjee.	Proceeded abroad for higher studies with the West Bengal State Scholarship in Zoology.	
26. Shri A. K. Biswas.	Proceeded abroad for higher studies in U.S.A.	
27. Shri Mohindra Singh.	Appointed as Lecturer, Govt. College, Solon.	
28. Shri R. K. Arora.	Appointed as Assistant Ecologist, in Botanical Survey of India.	

Sl. No.	Name	Particulars of scientific or other post-doctoral research work taken up by the Research Fellows after resigning the fellowships together with reasons.
29.	Shri D. M. Kochar,	Proceeded abroad for higher studies.
30.	Shri S. Yadav.	Awarded scholarship in the U.S.A.
31.	Shri S. Srinivasan.	Appointed to a technical post in the All-India Institute of Medical Sciences.
32.	Shri J. P. Nauriyal.	Appointed to Scientists Pool.
33.	Shri D. B. Dimbri,	Appointed as Lecturer.
34.	Shri V. Kali Prasad.	Appointed as Lecturer.
35.	Shri Inder Sen Singh.	Appointed as Lecturer.
36.	Dr. Mis, Nag Chaudhury.	Appointed as Lecturer.
37.	Shri Nurjehan Begum.	Employed in West Bengal Junior Education Service.
38.	Miss A. M. Desai.	Received financial assistance from some other source to carry on research.
<i>Regional Research Laboratory, Jammu.</i>		
39.	Shri Y. N. Sharma.	Appointed as J.S.A. in the laboratory.
<i>Central Fuel Research Institute, Jealgora:</i>		
40.	Mrs. Fatima Kaiser.	Appointed as J.S.O. at CFRI.
41.	Shri A. N. Narayanaswamy.	Joined the Indian Refineries as Trainee.
42.	Dr. A. K. Banerjee.	Appointed as J.S.O. at CFRI.
43.	Shri Dilip Kumar Basu.	Joined ICI as Technical Officer.
44.	Shri Salil Kumar Roy.	Awarded Burmah Shell Scholarship for training in U.K.
45.	Dr. J. N. Sharma.	Proceeded to U.K. on fellowship for higher studies.
46.	Shri G. Sitarama Murthy.	Appointed as S.S.A. in CFRI.
47.	Shri Sarojesh Roy.	Joined as Asstt. Professor in Bihar Institute of Technology, Sindri.

Sl. No.	Name	Particulars of scientific or other post-doctoral research work taken up by the Research Fellows after resigning the fellowships together with reasons.
National Aeronautical Laboratory, Bangalore:		
48.	Shri D. Tirumelasa.	Joined the laboratory as S.S.O. (Grade I).
49.	Shri M. Surendariah.	Joined the laboratory as S.S.A.
Central Drug Research Institute, Lucknow:		
50.	Dr. D. N. Dhar.	Joined the Indian Institute of Technology, Kanpur.
Central Building Research Institute, Roorkee:		
51.	Shri M. Ramaiah.	Appointed as S.S.O. in the C.B.R.I.
52.	Shri J. S. Khinda.	Went for higher studies and training abroad.
53.	Shri K. S. Jain.	Appointed as Asstt. Engineer in Irrigation Research Institute, Roorkee.
National Chemical Laboratory, Poona:		
54.	Dr. P. S. Aggarwal.	Appointed as Pool Officer in the N.C.L.
55.	Dr. V. R. Shah.	Proceeded abroad for higher studies.
56.	Shri R. Mani.	Proceeded abroad for higher studies.
57.	Dr. M. S. Narsinga Rao.	Appointed as Pool Officer in the NCL.
58.	Dr. S. P. Jindal.	Proceeded for higher studies abroad.
59.	Dr. A. Paul.	Proceeded for higher studies abroad.
60.	Dr. T. S. Nagarjunan.	Proceeded for higher studies abroad.
61.	Dr. N. K. Ghag.	Offered Senior Research Fellowship of the Govt. of U.P. tenable at C.D.R.I., Lucknow.
62.	Dr. S. N. Kulkarni.	Appointed as Pool Officer in the N.C.L.
63.	Shri N. S. Bhide.	Appointed as Junior Research Fellow in the Lac Dye Scheme sponsored by Indian Lac Cess Committee Ranchi for investigation at N.C.L.

Sl. No.	Name	Particulars of scientific or other post-doctoral research work taken up by the Research Fellows after resigning the fellowships together with reasons.
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Central Leather Research Institute, Madras:

64. Shri Kesavan Pillai.	Appointed in Small Industries Service Institute, Indore.
65. Dr. K. Lakshminarayana.	Appointed as Plant Biochemist, Botanical Survey of India, Calcutta.
66. Dr. R. B. Hajela.	Appointed as J.S.O. in the C.B.R.I., Roorkee.
67. Dr. N. U. Rao.	Appointed as S.S.O. Gr. I in C.P.H.E.R.I., Nagpur.

APPENDIX V

[Vide S. No. 23, 78th Report—Chapter III]

Statement showing the earlier constitution and the reconstitution of the National Research Development Corporation.

Earlier constitution

1. Shri Kasturbhai Lalbhai, Pan-kore's Naka, Ahmedabad.
2. Lala Shri Ram, 22, Curzon Road, New Delhi.
3. Shri P. A. Narielwala, Bombay House, Fort, Bombay.
4. Dr. V. A. Sarabhai, Physical Research Laboratory, Ahmedabad.
5. Shri G. G. Takle, Inspector General of Forests, Ministry of Agriculture, New Delhi.
6. Dr. G. P. Kane, Senior Industrial Adviser, Ministry of Commerce & Industry, New Delhi.
7. Prof. M. S. Thacker, Director General, Council of Scientific & Industrial Research and Secretary to the Government of India, Ministry of Scientific Research & Cultural Affairs.
8. Shri A. V. Venkateswaran, Joint Secretary to the Govt. of India, Ministry of Finance (Department of Expenditure), New Delhi.

Reconstitution

1. Shri Manubhai Shah, Minister for Industry. (Chairman).
2. Prof. M. S. Thacker, Director General, Council of Scientific & Industrial Research and Secretary to the Government of India, Ministry of Scientific Research and Cultural Affairs, New Delhi. (Vice-Chairman).
3. Dr. K. S. Krishnan, Director, National Physical Laboratory, New Delhi.
4. Dr. K. Venkataraman, Director, National Chemical Laboratory, Poona.
5. Dr. G. P. Kane, Senior Industrial Adviser, Ministry of Commerce & Industry, New Delhi.
6. Dr. B. D. Kalelkar, Senior Industrial Adviser, Ministry of Commerce & Industry, New Delhi.
7. Shri B. D. Kapur, C/o Messrs. Atlas Cycles Ltd., Sonapat (Punjab).
8. Shri Anantaramakrishnan, C/o Messrs. Simpson & Co., Ltd, 202/203, Mount Road, Madras.
9. Shri Abhijit Sen, Chairman Sen Releigh Industries of India Ltd., Calcutta-1.
10. Dr. M. D. Parikh, C/o Messrs. National Rayon Corporation Ltd., Ewart House, Bruce Street, Fort, Bombay-1.
11. Shri A. V. Venkateswaran, Joint Secretary to the Govt. of India, Ministry of Finance, New Delhi.
12. Dr. H. A. B. Parpia, Industrial Liaison Officer, Council of Scientific & Industrial Research, New Delhi.

APPENDIX VI

Analysis of the action taken by Government on the recommendations contained in the 76th, 78th and 83rd Reports of the Estimates Committee on the Ministry of Scientific Research and Cultural Affairs

	76th Report	78th Report	83rd Report
1. Total number of recommendations contained in the Report	62	52	61
2. Recommendations that have been accepted by Government (S. Nos. as per recommendations in Chapter II).	2, 4, 7-9, 12-22, 24-34, 36-46, 48-50, 52-54, 56, 59, 60 and 62.	3-5, 7-10, 12-14, 19-24, 26, 27, 29, 32, 33-37, 40, 44-47, 50-51.	1-20, 24-30, 33-37 and 39 & 41
Number	48	34	55
% of total	77.4	65.4	90.1
3. Recommendations not accepted by Government but replies in respect of which have been accepted by the Committee. (S. Nos. as per recommendations in Chapter III)	5, 6, 10, 23, 35, 55, 57, 58, and 61.	2, 6, 11, 15, 17, 18, 28, 30, 41, 43, 48, 49 and 52.	21, 22, 23, 31 & 32.
Number	9	13	5
% of total	14.5	25	8.2
4. Recommendations in respect of which replies of Government have not been accepted by the Committee (S. Nos. as per recommendations in Chapter IV)	1, 3, 11, 47 and 51	1, 16, 25, 31, and 43	58
Number	5	5	1
% of total	8.1	9.6	1.7

Jay's Book Depot,
Chappervala Kun, Karol Bagh, New Delhi

48. Dhanwantra Medical & Law Book House, 1522, Lajpat Rai Market, Delhi-6.

Oxford Book & Stationery Company, Scindia House, Connaught Place, New Delhi-1.

49. The United Book Agency, 48, Anarkaur Market, Pahargani, New Delhi.

People's Publishing House, Rani Jhansi Road, New Delhi-1.

50. Hind Book House, 2, Janpath, New Delhi.

17. Mehra Brothers, 50-G Kalkaji, New Delhi-19.

51. Bookwell, 4, Sant Narakhari Colony, Kingsway Camp, Delhi-9.

MANIPUR

52. Shri N. Chaoa Singh, Newspaper Agent, Ramnail Paul High School Annex, Imphal, Manipur.

AGENTS IN FOREIGN COUNTRIES

U.K.

53. The Secretary, Establishment Department, The High Commission of India, India House, Aldwych LONDON, W.C.-2.



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